

XVI. Hymenoptera aculeata, *collected in Algeria* by the Rev. ALFRED EDWIN EATON, M.A., F.E.S., and the Rev. FRANCIS DAVID MORICE, M.A., F.E.S. *Part I. Heterogyna and Fossores to the end of Pompilidæ.* By EDWARD SAUNDERS, F.L.S., V.P.E.S.

[Read October 16th, 1901.]

THE subject-matter of this paper consists of two collections, one made by Mr. Eaton at various periods during the years 1892—1897, and the other by Mr. Morice in the spring and early summer of 1898. Both are rich in species, and contain a large number of undescribed forms. Mr. Eaton, although not a specialist in Hymenoptera, has been good enough to collect that order most assiduously on my behalf, and I am very glad to be able to record here my appreciation of his kindness. Mr. Morice is a well-known specialist in this order, and his collection, for the short time he was in Algeria, is a very extensive one, and contains a number of species not included in Mr. Eaton's, but having never studied botany, he has been unable to furnish such data as those given by Mr. Eaton. Mr. Morice has very kindly consented to help me in the preparation of this paper, and the present part will, I hope, shortly be followed by one on the Sphegidæ, which will be from his pen.

Until the whole collections are thoroughly worked through, it is impossible to supply accurate data as to the attractive powers of the various plants, the distribution of the species captured in respect of altitude, season, etc., but I hope to deal with these in a tabular or other compact form at the close of the paper.

With the specimens of Aculeate Hymenoptera collected by him in Algeria and at Tunis, Mr. Eaton furnished notes corresponding with indications on their pin-labels relating to circumstances of their capture, such as place, date, flowers frequented by the species, and in some instances peculiarities of habits, and the colours of the eyes, etc., in life. Limitations in respect of excursions and places of sojourn were imposed upon him by the state of his health; and he has kindly summarized, under the head of each of the principal halting-places, sites of which mention is made

in the notes relating to that neighbourhood, arranging these subsidiary stations according to routes, to show how small were the districts worked over.

Alger or Algiers (Oct. 26th, 27th, and Nov. 16th, 1892, to May 10th, 1893).—All of the subsidiary places<sup>1</sup> noted during this period are situated within the area cut off by a straight line drawn from Maison Carrée to the mouth of the streamlet below Sidi Ferruch: the highest parts of Bouzaréa were seldom visited. Few *Aculeata* were caught before the spring. In April many attractive flowers<sup>2</sup> came into blossom.

Médéa (June 25th to Aug. 22nd, 1893).—Altitude about 2900 to 3000 feet. The principal cultures are cereals and vines; olives and pomegranates are of less importance. The road and railway from Algiers pass Blida (altitude 850 to 900 feet) and Sidi Modani (26 vii, 1893; altitude about 600 feet), near Ruiseau des Singes (ditto; altitude about 700 feet) in the Gorges de la Chiffa. The harvest was nearly over by the end of June.

*Subsidiary places and sites.*—Within three to five kilomètres from the centre of the town (altitude 2930 feet), from west to north:—Maison Berronis by the lower road to Lodi (altitude 2980 to 3030 feet); upper road by les Trembles and Dakela to Lodi (altitude 3440 feet and under) and its branch up the valley between Kef-el-Azeri (3702 feet) and Djebel Nador to Tib Harin, and mule-tracks on roads among vineyards on the Nador (up to about 3440 feet), by which Aine-ed-di-Dib, over the ridge, can be reached

<sup>1</sup> Towards Maison Carrée,—Hussein Dey and the Polygone, skirting the sea-shore; Jardin d'Essai or du Hamma, Agha, Porte d'Isly and the ramparts adjoining it. Towards Sidi Ferruch along the coast,—Bab-el-Oued, St. Eugène, Pointe Pescade, Bains Romaines. Near Mustapha Supérieur:—Colonne Voirol, Route Madeline. Towards el-Biar:—the Kasbah and neighbouring ramparts, Port de Sahel, Fort de l'Empereur; and to the Frais Vallon and (above St. Eugène) the Vallon des Consuls.

<sup>2</sup> Plants cited (months indicated in Roman characters, days in Arabic characters).—*Geraniaceæ*; *Oxalis corniculata* and *cernua* (ii.). *Linaceæ*; *Linum* sp.—(iv.). *Cactaceæ*; *Opuntia* [hedges]. *Cucurbitaceæ*; *Bryonia dioica* (v.). *Umbelliferæ*; *Smyrniolum olusatrum* (ii. end—iv.), *Magyaris tomentosa* (v.), *Ferula communis* (iv.—v.). *Compositæ*; *Asteriscus maritimus* (iv.—v.). *Phagnalon rupestre* (iv.), *Anacyclus clavatus* (iv.—v.), *Chrysanthemum segetum* (iv.), *Centaurea seridis* (iv.—v.), *Carduus* [*Silybum*] *marianus* (iv.). *Ericaceæ*; *Arbutus unedo* (xi.). *Boraginaceæ*; *Echium italicum* (iv.—v.), *Cerinthe aspera* or *gymnandra* [according to site] (iv.—v.). *Labiataæ*; *Prasium majus* (iv.).

(altitude 3177 feet); and a mule-track west of and parallel with the main road to Algiers near the town. [A large part of the woods above Tib Harin was accidentally or malevolently burned (I believe) this summer.]

The environs of Médéa to the right of the Route d'Alger and north of the Route de Laghouat yielded many interesting species. The best sites were along a mule-track leading to the hill marked 991 (3250 feet) above the railway-station; the heads of ravines on the northern slopes of the ridge, near Md. Ben Omar (2730 to 3130 feet); and in vineyards, etc., along the northern flanks of Koudia Sma (2700 to 3180 feet, the summit); the upper parts of this hill were less productive.

South and east of the town, as far as the stream Oued-el-Harch (about 1900 feet) and Damiette (about 3000 feet), are several excellent collecting-sites:—Plateau d'Ouzaneau, Aine Mekra (2700 feet) and Aine Souk. Farther eastwards are Hassen-ben-Ali and Kef-el-Ahmeur.

Plants cited.—*Malvaceæ*; *Malva sylvestris* (vi.). *Caryophyllæ*; *Dianthus serrulatus* (vi. 27). *Leguminosæ*; *Sarothamnus arboreus* (vi.). *Umbelliferæ*; *Eryngium triquetrum* (vi. to vii. 12), *tricuspidatum*, in woods (viii. 17, 21), *Daucus setifolius*, in woods (vii. 30; viii. 2), *carota* [maximus], seldom attractive to bees (vii. 8). *Dipsacæ*; *Scabiosa maritima* (vi. to vii. 11). *Compositæ*; *Pulicaria dysenterica* (vii. 5), *Carlina racemosa* (viii. 17, 21), *Atractylis gummifera* (viii. 12), *Centaurea nicæensis* (vi.), *calcitrapa* (vii. 5–21), *Microlonchus salmanticus* (vii. 11–30), *Onopordon macracanthum* (vi. to vii. 5), *Cirsium giganteum* (vii. 5), *Scolymus hispanicus* (vi. to vii. 11), *Sonchus arvensis* (vii. 28). *Convolvulaceæ*; *Convolvulus arvensis* (vi.). *Boraginæ*; *Echium* sp.—(vi.—vii. 3). *Labiata*; *Mentha rotundifolia* (vii. 11 to viii. 11). *Verbenacæ*; *Verbena officinalis* (vii.). *Thymelææ*; *Daphne gnidium* (viii. 21). *Liliacæ*; *Asparagus* sp.—(vi. 28), *Allium* sp. (vii. 14).

In Kabylie, Tizi-Ouzou, Azazga, and Fort National were visited.

Tizi-Ouzou (Oct. 30th, Nov. 8th to 11th, 1892), when Hymenoptera were not prime specialities; and June 13th to 15th, 1893.—Sites of captures made in neighbourhood range in altitude from about 160 feet to 800 feet, but mostly lie between 300 and 600 feet.

*Subsidiary places and sites.*—Drâ-ben-Kredda or Mira-

beau (altitude 160 feet) to the west; Tissadourt (altitude at the ford, about 300 feet); Oued-kef-en-Nadje; Irzer Argoub Amrouch; military monument on the mule-track from Aine Hallouf to the Maison Forestier d'Harouza on a spur of Djebel-el-Beloua; the public gardens and other parts of the immediate outskirts and environs.

*Plants cited* (June).—*Zizyphus lotus*; *Echinops spinosus*; *Centaurea* sp.—; *Echium* sp.—; *Mentha* sp.—; *Calamintha* sp.—; *Phlomis*.

Driving from Tizi-Ouzou up the valley of Oued Sebaou, a bush of *Zizyphus lotus* (vi. 13) at the parting of the road to Mekla, was thronged by *Aculeata*, some of which were secured. There is now a tram-line to Azazga.

Azazga (June 13th and Aug. 30th to Sept. 24th, 1893) adjoins the Forêt de Yakouren, the largest forest of cork and other oaks in the Province d'Alger. Olives, vines and cereals are the prevailing cultures. Altitude about 1400 feet.

*Subsidiary places and sites*.—Cemetery and Maison Forestier on the road to Yakouren village, which is distant twelve kilomètres from Azazga, and at an altitude of about 2677 feet.

*Plants cited*.—*Echium* (vi. 11); *Eryngium tricuspdatum* (ix.); *Inula viscosa* (ix.); *Carlina racemosa* (viii. 30—ix.); *Mentha rotundifolia* (viii. 30—ix.).

Fort National (Nov. 1st to 3rd, 1892).—Any bees collected were captured along the ridge running south-east, or near the town, at altitudes of about 2800 to 3500 feet.

On the railway (l'Est Algerien) from Algiers to Constantine, during short halts of the train, a few bees were obtained at Mechta-el-Arbi, on *Chicorium intybus* and *Marrubium vulgare*, and at Telerma (otherwise Telergma) on *Asphodelus microcarpus* (v. 16, 1893) growing in railway sidings. At Sétif (vi. 5, 1893), at 6.30 A.M., a stroll to the outskirts of the town yielded very little (altitude about 3590 feet).

Constantine (Sept. 30th to Nov. 3rd, 1893; June 11th to 23rd; Oct. 10th to Nov. 17th, and Dec. 5th to 15th, 1894; May 5th to June 14th, and Oct. 11th to Dec. 6th, 1895).—Altitude at the corner of Rue National and Rue de France about 2000 feet. The river Roumel in a deep gorge separates the town from Mansoura and el-Kantara on the east, and M'cid, skirted by the Route de la Corniche on the north, where it descends in a cascade, some distance

above the Pont d'Aumale. At the south-west angle of the town is Koudiat Aty, which was being largely quarried away to gain space for extension of the suburb.

*Other subsidiary sites.*—At altitudes not exceeding 2000 feet:—Woods on the flanks of Mansoura; Route de Batna to about third kilomètre; parts of the valleys of the Roumel and Merzoug ranged over; Camp des Oliviers; Aqueduc Romaine; slopes of hills worked over between this and the Seminaire; Moslem and French cemeteries; Route de Philippeville or Stora; Hammam Sidi M'cid; Route de la Corniche and railway to Philippeville [Smendou, a station on that line], and most of the adjacent slopes; wood below the hospital; el-Kantara and the old Jewish cemetery.

At altitudes upwards of 2000 feet:—The brow of the spur of M'cid behind the hospital, and the higher parts above the quarries, including the newer Jewish cemetery; Biet-i-Ras, on the further spur of Djebel Ouach, above the Route de la Corniche; Djebel Ouach (from about 2800 feet to the summit above the reservoirs, 4265 feet); the Mansoura and woods to the north of it; Mt. de Constantine, opposite the south-west suburbs (up to 2500 feet), and Koudiat Aty.

*Plants cited.*—At altitudes of 2000 feet and under:—*Ranunculaceæ*; *Nigella hispanica* (vi. 2). *Cruciferæ*; *Brassica* (*Sinapis*) *nigra* (v. 22, vi. 1), *Diploxys muralis* (v. 21, 22), *viminea* (v. 10). *Leguminosæ*; *Ononis viscosa* (vi. 6), *Lotus ornithopodoides* (v. 18), *Onobrychis venosa* (vi. 12). *Cactaceæ*; *Opuntia*. *Cucurbitaceæ*; *Ecballium elaterium* (ix. 30). *Umbelliferæ*; *Eryngium triquetrum* (vi. 7–23), *Ænanthe fistulosa* (v. 7, 10); *Ferula communis* (v. 20); *Thapsia garganica* (v. 15, 17, 18). *Dipsaceæ*; *Scabiosa maritima* (vi. 16, 18). *Compositæ*; *Inula viscosa* (x. 1, 4, 15), *Asteriscus aquaticus* (vi. 9), *Anacyclus clavatus* (v. 10), *Atractylis gummifera* (x. 1), *Centaurea nicæensis* (vi. 10), *Cynara cardunculus* (v. 15), *Galactites tomentosa* (v. 7, 15), *Carduus* (*Silybum*) *marianus* (v. 7), *pycnocephalus* (v. 20), *pteracanthus* (v. 10, 13), *macrocephalus* (v. 17, 18), *Scolymus hispanicus* (vi. 14), *Sonchus tenerrimus* (v. 8, 14, 20; vi. 1), *Crepis taraxacifolia* (v. 21, 22), *clausonis* (xi. 2). *Boraginæ*; *Anchusa italica* (v. 19, 28; vi. 12); *Echium italicum* (v. 22, 29; vi. 16). *Solanæ*; *Solanum nigrum* (x. 1). *Scrophularinæ*; *Antirrhinum majus* (v. 17). *Labiata*; *Thymus lanceolatus*, *var. Kabylicus* (vi. 11); *Salvia patula* (vi. 12). *Thymelæ*; *Daphne gnidium* (v. 5; x. 4).

At altitudes of over 2000 feet and under 4260 feet:—*Caryophyllæ*; *Alsine procumbens* (vi. 15). *Crassulacæ*; *Sedum cæruleum* (v. 13, 16). *Umbelliferæ*; *Ferula communis* (v. 14, 20, 22; vi. 11); *sulcata* [*scabra*] (vi. 2, 23); *Thapsia garganica* (v. 22, 28, 30). *Compositæ*; *Centaurea pullata* (v. 13), *calcitrapa* (vi. 11); *Carthamus helenoides* (vi. 11); *Onopordon macracanthum* (vi. 11, 14); *Carduus macrocephalus* (v. 28); *Hypochoëris glabra*, *var. loiseleuriana* (v. 10, 13, 14). *Oleincæ*; *Phillyrea media* (vi. 23). *Convolvulacæ*; *Convolvulus lineatus* (v. 10), *tricolor* (v. 13, 14). *Boraginæ*; *Echium italicum* (v. 21). *Labiataæ*; *Marrubium vulgare* (v. 21, 29), *Alysson* (v. 22; vi. 15); *Phlomis Herbaventi* (v. 16, 19); *Stachys circinata* (v. 22; vi. 1).

Bône (Nov. 4th to 7th, 1893; Nov. 20th to June 11th, 1895, and again from July 31st to Nov. 3rd, 1896; and July 25th to August 25th, 1897).—With the exception of the outskirts of Bugeaud (at altitude of about 2750 feet; Feb. 17th), on Mt. Edough, a site on the slopes of one of its spurs named El Ourida (about 1100 feet; May 11th), and the saddle between the valleys of Oued Bon Zen and Oued Guerbecke (about 1750 feet; May 11th) in that direction, the localities referred to in the neighbourhood of Bône do not exceed 600 feet in altitude, and most of them are quite on low ground.

*Subsidiary sites.*—Along the coast, from Cap de Garde to the mouth of Bou Kamira, beyond the Seybouse:—Fort des Genois, the plages Chapuis and Luquin, with Oued Kouba, along the Route de la Corniche; the Jewish cemetery and hill behind the Kasba, near the Porte des Caroubiers; the Abattoir; Rocher du Lion, the Boulevard des Casernes and the road beneath, along the port. The Pepinière, Régie de Tabac, French cemetery and hill behind it. To the north of the town. The Jardin Randon and Faubourg St. Antoine, and onwards up the Route de Bugeaud and the neighbouring slopes and mountain spur to about the fourth kilomètre. To the north-west:—the Porte and Plaine des Karézas, Asile des Vieillards, the Aqueduc above this (altitude about 600 feet); the Orphelinat, Ruiseau de l'Aune, Oued Deb, Oued Makine, Djebel Bou Kanta, Moslem cemetery, Route des Karézas and Oued Bou Djema, to the westward. The Route de la Calle, Bône-Guelma railway, Aine Mokra railway, Hippône, bridge over the Seybouse near Usine Talbot, and Ferme Larcombe,

to the southward:—the railway terminus and shore of the estuary of the Seybouse.

Oued Bou Sba (June 6th), and St. Joseph, Beni Salah (altitude 750 feet; March 28th to 30th), are some miles distant on the Bône-Guelma railway.

Plants cited.—*Cruciferæ*; *Diploaxis* sp., or *Brassica* (*Sinapis*) *nigra* (iv. 6, 30; v. 2); *Koniga* (*Alysson*) *maritima* (xii. 31; i. 4). *Tamariscinæ*; *Tamarix* (vii. 26, 29; viii. 18; ix. 7). *Geraniaceæ*; *Erodium* sp.—(iv. 9). *Leguminosæ*; *Ononis* *natrix*, *var. ramosissima* (viii. 21); *Lotus* *prostratus* (iv. 9). *Rosaceæ*; *Rubus* *discolor* (iv. 30; viii. 11–13, 17, 21). *Lythraceæ*; *Lythrum* *salicaria* (viii. 10). *Umbelliferæ*; *Eryngium* *tricuspidatum* (viii. 6, 17); *Ammi* *majus* (viii. 8), *visnaga* (viii. 10, 18); *Daucus* *gummifer* (viii. 8, 17), *gracilis* (viii. 13). *Dipsacæ*; *Scabiosa* sp.—(viii. 10), *rutæfolia* (v. 26). *Compositæ*; *Bellis* *sylvestris* (ii. 17); *Aster* of horticulture (xi. 10); *Inula* *viscosa* (xi. 4), *crithmoides* (viii. 24; xii. 28, 31); *Senecio* sp.—(ix. 10), *leucanthemifolius* (ii. 17, 26; iii. 4, 11, 23); *Carlina* *racemosa* (viii. 13); *Atractylis* *gummifera* (viii. 17); *Centaurea* sp.—(vii. 31; viii. 2); *Scolymus* *hispanicus* (viii. 10, 22); *Chondrilla* *juncea* (viii. 22); *Crepis* *taraxacifolia* (iv. 20), *clausonis* (xii. 31). *Asclepiadææ*; *Cynanchum* *acutum* (viii. 17–20, 23). *Convolvulacææ*; *Convolvulus* *althæoides* (iv. 30). *Boraginææ*; *Borago* *officinalis* (iii. 16; iv. 6); *Alkanna* *tinctoria* (iii. 4); *Echium* *italicum* (iii. 16; iv. 6); *Cerinthe* *aspera* (iii. 16, 17, 22; iv. 6); [*C. oranensis*, by the mouth of the Seybouse, did not appear to be visited by bees.] *Labiataæ*; *Lavandula* *stœchas* (iii. 22; v. 9, 11); *Mentha* *rotundifolia* (viii. 6, 10). *Verbenacææ*; *Verbena* *officinalis* (viii. 22). *Plumbaginææ*; *Statice* *limonium* (viii. 30; ix. 2). *Chenopodiaceææ*; *Salsola* *kali* (viii. 19, 23). *Euphorbiacææ*; *Euphorbia* *helioscopia* (iii. 16; v. 4), *paralias* (vii. 31 [1896 and 1897]; viii. 5, 7, 21, 23; ix. 7); *Chrozophora* *tinctoria* (viii. 3, 11). *Palmææ*; *Chamærops* *humilis* (i. 24). *Liliacææ*; *Asphodelus* *microcarpus* (i. 24; ii. 17, 26). *Juncææ*; *Juncus* *acutus* (viii. 21, 25).

The Route de la Calle from Bône passes the Lac des Oiseaux (altitude 19 feet) near Blandan (vi. 15), Le Tarf (altitude about 90 feet), and Lac Houbiera (altitude under 100 feet) in going to La Calle.

Le Tarf (vi. 16–29; vii. 2 and 23–27).—Altitudes not exceeding 130 feet, mostly much lower. Cultures chiefly cereals; vines on a relatively small scale. The woods on

higher ground seemed to have been set on fire some time previously.

*Subsidiary places and sites.*—Coming from Blandan to le Guergour, south of the river Oued-el-Kebir; Krélidge Zaora; Douar des Spahis. North of the river—Aine Kriar and source of Cha. Demenet-el-Lil; Djebel Ouast.

Plants cited.—*Umbelliferæ*; Ammi majus (vi. 27; vii. 26, 27); Fœniculum vulgare (vi. 27; vii. 24–27); Daucus muricatus (vi. 17, 27). *Compositæ*; Centaurea napifolia (vi. 17); Cynara cardunculus (vi. 27, 28; vii. 23–25); Scolymus grandiflorus (vi. 17, 19). *Scrophularinæ*; Linaria reticulata (vi. 22). *Labiataæ*; Mentha rotundifolia (vii. 25). *Verbenacæ*; Verbena officinalis (vii. 24).

La Calle, by the sea.—Collected a mile or two in both directions along the precincts of the shore, and at altitudes of under 300 feet along roads (vi. 30 to vii. 1 and vii. 4–19).

*Subsidiary localities and sites.*—East side of Lac Houbeira (not exceeding altitude of 600 feet; vii. 3) and the part near Bou Merchen (vii. 11). West side of Lac Tonga (altitude under nine feet; vii. 13) and near El Ma Izil and the base of Koudia Deidei (altitude not exceeding 85 feet; vii. 16); mines of Kef Oum Teboul, by the conduit (vii. 16).

Plants cited.—*Ranunculacæ*; Delphinium peregrinum (vii. 1, 8). *Umbelliferæ*; Thapsia polygama (vii. 19); Daucus sp.—(vii. 9). *Dipsacæ*; Scabiosa rutæfolia (vii. 18, 19). *Compositæ*; Ormenis mixta (vi. 30). *Boraginæ*; Echium sp.—(vii. 9). *Labiataæ*; Mentha rotundifolia (vii. 9).

A branch of the Route de Tabarka from La Calle leads to Aine Draham (vii. 20–22) on the Tunisian frontier. Altitude about 2624 feet.

Plants cited.—*Compositæ*; Centaurea tagana (vii. 22) on the west slope of Djebel Bir; and C. melitensis (vii. 20).

The Bône-Guelma railway is prolonged to Tunis (xii. 4–21).

*Subsidiary localities and sites.*—Jardin Bône-Guelma, at the railway-station; cemetery of Sidi bel Hassen; border of the salt lake Sebkhah-el-Seldjouni; Bordj Felfel; Route de Bardo; Byrsa and the amphitheatre; Malka Carthage.

Biskra is easily reached in a day by rail from Philippeville or Constantine. The Fontaine Chaude of June 5th, 1893 is a station between El Guerrah and Batna.

Biskra (May 17th to June 4th, 1893; January 16th, 1894 to June 5th, November 24th to 26th, and December 19th



to May 3rd, 1895; and November 25th, 1896 to July 22nd, 1897). Altitude about 360 feet. From the end of November until the end of January scarcely a bee is to be seen. Spring opens in February; *Acanthyllis tragacanthoides* amongst the stony wastes; *Moricandia* on alluvial soil of finer texture in the outskirts of the oasis and on the hills; and within the range of irrigation, on pastures amongst the gardens and palms, herbaceous *Leguminosæ* and *Compositæ* provide attractions to Aculeate hymenoptera. Species of *Tamarix* in the neighbourhood of the river and in gardens blossom irregularly from the end of March onwards, and demand much attention during April, when also *Peganum harmala*, a roadside plant, yields some interesting insects. Then *Zizyphus lotus* gives much employment to the net-man well on into May, growing amongst the stony wastes and along the borders of the river valley. After that, from the middle of May onwards into July, *Ammi visnaga*, a white-flowered umbelliferous weed on the drier parts of irrigated land, is enough to monopolize the whole attention of the most assiduous Hymenopterist, although there are many small plants on the stony wastes to be ranged over.

*Subsidiary sites and places.*—Fort St. Germain, adjoining the main conduit and the public gardens opposite the railway-station; a smaller garden near the market-place and school; Route de Sidi Okba, passing the village Nègre near Jardin Landon on the near side of the river-bed, Oued Biskra; Route de Tougourt, passing the M'zabite and Moslem cemeteries, vieux Biskra and the outlying oasis of Cora, and passing to the right of M'cid on either side are mule-tracks amongst the enclosures and palms. Route des Zibans, towards the south-west, leading through the area of irrigation exterior to the palm-groves, past a Marabout-tomb to the dunes near the Sources d'Oumach; Parc de Beni Mora and the rocky ridge (with a rifle-range at its north base), interrupted in two or three places, extending to and beyond the Montagne de Sable. The tram-line and road to the hot baths, Hammam es Salahin, a nulla or donga between them and Beni Mora; the stream from the Hammam, the sand-hills west of the stream, an extinct source in the form of a crater-shaped hill and another near this (a circular reed-fringed pond) known as the Petit Lac, and the ridge in the background that attains in that neighbourhood a height of about 1600 feet. The Route de Stora

that passes through the stony wastes and low hills (koudia) north of the oasis, and crosses by the Col de Sfa the higher ridge, Djebel-bou-Ghezala, previously alluded to. The old race-course, French and Jewish cemetery, railway to Constantine as far as kilomètre 198, and the neighbouring koudias or hills and stony wastes, north and north-east of the town; the pastures and Maltese palm-garden between the railway and the river above the barrage, about kilomètre 199 to 198, and the borders of the river, Oued Biskra amongst Tamarix scrub thereabouts; the hill with Bordj Turcvieux upon it, by railway kilomètre 200, commanding the barrage; and a brick-kiln by the conduit or sakia between the barrage and Fort St. Germain. The border of the river and the Arab douar on the further side from Biskra, and some flat-topped hills beyond that:

Plants cited.—*Cruciferae*; Raphanus sativus (iii. 3); Neslia pauciovulata (v. 12); Brassica napus (ii. 27; iii. 3); Diplotaxis pendula (ii. 26; iii. 1, 13, 30; iv. 14); Moricandia cinerea (ii. 16, 17; iii. 10) and arvensis (ii. 10–17, 25, 26 and iv. 22). *Capparidæ*; Cleome arabica (ii. 8). *Resedaceæ*; Reseda sp.—(iii. 21). *Frankeniaceæ*; Frankenia hirsuta (v. 15, 20). *Zygophylleæ*; Zygophyllum cornutum (ii. 10, 12; iii. 20; iv. 18); Peganum harmala (iv. 3–26; v. 3); Nitraria tridentata (iv. 25, 27; v. 11, 25). *Rhamnæ*; Zizyphus lotus (iv. 25 to v. 22). *Leguminosæ*; Retama retam (ii. 15); Ononis angustissima (iii. 28); Melilotus messanensis (ii. 15); Medicago lappacea (iii. 12); Acanthyllis tragacanthoides (i. 27—ii. 24); Hedysarum carnosum (iv. 9, 18). *Tamariscinæ*; Tamarix brachystylis, etc. (iii. 23—v. 14). *Umbelliferæ*; Eryngium ilicifolium (vii. 18); Ammi visnaga (v. 10—vii. 8); Deverra chlorantha (v. 10—vi. 3), scoparia (xi. 26; ii. 14; v. 22—vi. 4); Ferula vesceritensis (ii. 17 (?), 25; iv. 5, 15—the flowers seldom visited for honey, except by ants and Diptera). *Compositæ*; Perideria fuscata (ii. 4–23; v. 7); Calendula sp.—(ii. 8, 15); Echinops spinosus (iv. 25—v. 10); Atractylis serratuloides (iv. 30—v. 13); Centaurea sp.—(v. 3); Amberboa Lippii (iii. 27—iv. 13); Carduus sp.—(v. 7, 18); Hypochæris glabra (iv. 27); Leontodon (kalbfusia) mulleri (iv. 15); Sonchus maritimus (iv. 3–13); Picridium vulgare (iv. 11, 13), tingitanum (iv. 3, 12); Crepis taraxacifolia (iv. 13; v. 7). *Asclepiadæ*; Dæmia cordata, Pterocheilus (black) at rest on (ii. 14). *Boraginæ*; Echium humile (iv. 11, 12; v. 15); Echiochilon fruticosum (iii. 28).

*Solanæ*; *Lycium afrum* (ii. 6). *Scrophularinæ*; [*Scrophularia saharæ* did not appear to be attractive to anything, at the end of March near the Montagne de Sable, on the north slope of the rocky ridge;] *Antirrhinum ramosissimum* (iii. 28—v. 26); *Linaria fruticosa* (v. 28). *Labiata*; *Teucrium polium* (v. 26, 28). *Plumbaginæ*; *Limoniastrum guyonianum* (iv. 13—v. 6); [*L. feei* seemed unattractive;] *Statice pruinosa* (v. 24). *Polygonæ*; *Polygonum aviculare* (vi. 30); *Caligonum comosum* (iii. 28). *Chenopodiaceæ*; *Suaeda vermiculata* (iii. 27; v. 3); *Salsola tetragona* (iii. 25). *Thymelææ*; *Thymelæa microphylla* (iv. 28). *Euphorbiaceæ*; *Euphorbia guyoniana* (iii. 17—iv. 27). *Graminæ*; *Cynodon dactylon* (iv. 13); *Ælurops litoralis* (iv. 9), indicating favourable sites for certain small Fossores.

Only three of the species of Terrestrial isopod crustacea (wood-lice) commonly associated with ants were obtained from ants' nests.

*Porcellio pallidus*, B.—L.: Tizi Ouzou (xi. 8<sup>a</sup>, 10, 11) with *Aphænogaster barbara* on Djebel-el-Beloua, at about 230 feet altitude, and by Oued-en-Nadje; Constantine (x. 25) a little below the cavalry barracks on the Mansoura; and Bône (xi. 14<sup>a</sup>, 17<sup>b</sup> and 24) beside the Route de Karézas near Hippône on the opposite side of Bou Djemma, and beyond Plage Chapuis along the road to Cap de Garde. Also with *Myrmecocystus viaticus* along this last road (xi. 13).

*Leptotrichus panzerii*, Aud. and Sav.: Bône (xi. 13) with *M. viaticus* and (14<sup>a</sup> and 17<sup>b</sup>) with *A. barbara* in the same places as *P. pallidus*. Tunis (xii. 12 and 15) at the border of Sebka-el-Seldjoui and near Bordj Felfel—probably with *A. barbara*.

*Platyarthrus Schöblii*, B.—L.: Bône with *A. barbara*, on the Plaine des Karézas (xi. 6) and associated with *Cremastogaster Auberti*, between Plage Chapuis and Cap de Garde (xi. 24). Biskra (i. 18 and 21) with *A. barbara* near the Douar Arabe across the river, and with this species and *Tapinoma erraticum* by the main road to Vieux Biskra, in an enclosure near the M'zabite cemetery. It also occurs on fallows near the Route des Zibans, in favourable weather.

CAMPONOTUS MACULATUS, Fab., race dichrous, Forel.

♂ ♀ and ♂ major and minor. Under a stone north of Beni Mora on the hills of the desert, 17. i. 94. A. E. E.

Biskra, 30. v. 98 }  
 Alger, 28. iii. 98 } F. D. M.

CAMPONOTUS MACULATUS, Fab., race atlantis, Forel.

♀. Fontaine Chaude, near Biskra, under a stone.  
 Only one nest seen, 29. iii. 94. "The ant is  
 the colour of a common termite." A. E. E.

CAMPONOTUS MACULATUS, Fab., race sylvaticus, Oliv.

♂ ♀. Near Azazga (taken in copula). Altitude 1900  
 feet, 13. ix. 93. A. E. E.

CAMPONOTUS RUFOGLAUCUS, Jerdon, race micans, Nyl.

♀. Biskra; under a stone, 26. ii. 94. A. E. E.  
 ♀. Médéa; hill to the north. Altitude 3000 feet,  
 27. vi. 93. A. E. E.  
 ♀. Philippeville, 20. vi. 98. F. D. M.

CAMPONOTUS SICHELII, Mayr.

♂ ♀. El Biar, beneath a stone under trees, 13. ii. 93.  
 A. E. E.

MYRMECOCYSTUS VIATICUS, Fab.

♂ ♀ ♀. Biskra, four males apparently asleep among  
 the leaves of *Ammi visnaga*, 30. v. 93. A. E. E.  
 ♀ 2. Constantine, 16. vi. 94. A. E. E.  
 ♀. Alger, 28. iii. 98. F. D. M.  
 ♀. Biskra, 11. v. 98. "These ants when on the  
 ground run about with their wings nearly erect."  
 A. E. E.  
 ♀ 1. Le Tarf, 20. vi. 96. A. E. E.

MYRMECOCYSTUS ALBICANS, Rog., race viaticoides, André.

♀ 1. Biskra, 4. vi. 93. A. E. E.  
 ♀ 1. Biskra, 7. v. 98. F. D. M.

MYRMECOCYSTUS BOMBYCINUS, Rog.

♂ ♀ ♀ major and minor. Biskra on the Dunes, some  
 very fine examples of the Soldier form, May  
 1893 and 1894—"18. v. 93.—found several nests,  
 two containing pupæ. The sand is apt to fall in  
 and efface the entrance, and then a party of  
 ants may be seen collected together scraping

away and kicking out the sand to re-establish communications with the community. A valiant species. When the nest is hacked up with the hoe they sally to bite you ten or twelve yards from the nest." A. E. E.

♂. Biskra, 11. v. 98. F. D. M.

PLAGIOLEPIS PYGMÆA, Latr.

♂ and ♀. Biskra, 28. v. 94. A. E. E.

♀. Alger, 26. iii. 98., 5. iv. 98. F. D. M.

BOTHRIOMYRMEX MERIDIONALIS, Rog., race atlantis, Forel.

♂ ♀. Pointe Pescade, under a stone, 13. ii. 93.

A. E. E.

Two or three examples have the terminal joint of the antennæ concave on one side, which gives it a most peculiar character. Prof. Forel tells me this peculiarity is of common occurrence in this species.

DORYLUS JUVENCULUS, Shuck.

♂. Biskra, at light, 24. iv. 95. A. E. E.

♀. Alger. F. D. M.

TETRAMORIUM CÆSPITUM, Linn.

♂ ♀ ♀. Biskra, 12. ii. 94., 10. v. 94. A. E. E.

LEPTOTHORAX ANGUSTULA, Nyl.

♀. Alger, in bramble stems, 26. iii. 98. F. D. M.

MONOMORIUM SALOMONIS, Linn.

♀ ♀. Biskra, nests in sandy soil and under stones, 22. i. 94., 27. ii. 94. A. E. E.

MONOMORIUM SUBOPACUM, Sm.

♀. Alger, 28. iii. 95. F. D. M.

APHÆNOGASTER BARBARA, Linn.

♂ ♀ ♀. Biskra, near Alger, 14 and 24. ii. 93., 8. iii. 94. A. E. E.

APHÆNOGASTER TESTACEOPILOSA, Luc.

♀. Alger, 26. iii. 98. F. D. M.

## PHEIDOLE MEGACEPHALA, Fab.

♀ ♂ minor. Fontaine Chaude on the Dunes, 9. v. 94.  
A. E. E.

♂ minor. Alger, iii. 98. F. D. M.

## SOLENOPSIS ORBULA, Em.

♀. Biskra, flying, 10. ii. 94. A. E. E.

## CREMASTOGASTER AUBERTI, Em., race læstrygon, Em.

♂. Bône, 24. xi. 93. "Associate of *Leptotrichus panzerii*, *Platyarthrus schoblii* and *Porcellio pallidus*." A. E. E.

♂. Alger, 15. iii. 98. F. D. M.

## CREMASTOGASTER SORDIDULA, Nyl.

♂ ♀. Constance, autumn, 1894.

MUTILLA (*Myrmilla*) CAPITATA, Luc.

♀ 2. Biskra, 29. v. 94., 3. v. 95. A. E. E. Alger, 25. iv. 98. F. D. M. Constantine, 15. vi. 98. F. D. M.

MUTILLA (*Myrmilla*) DORSATA, Fab.

♀. Aine Draham (Tunisie), 21. vii. 96. A. E. E.

Ditto, var. *excoriata*, Lep.

♀. Biskra, 29. v. 94. A. E. E.

♀. Alger, 29. iv. 98. F. D. M.

♀. Constantine, 15. vi. 98. F. D. M.

MUTILLA (*Myrmilla*) BIPUNCTATA, Latr. = *bituberculata*,  
[Smith.]

♀. Very dark. Hussein Dey, 4. iv. 93. A. E. E.

Alger (Common). April '98. F. D. M.

♀. Bône, 6. iii. 96. "Common in the district."  
A. E. E.

MUTILLA (*Sens Strict*) BARBARA, Linn.

♀ 1. Much rubbed, Médéa, 17. vii. 93. A. E. E.

♀ 1. Small, Le Tarf, 24. vi. 96. A. E. E.

Ditto, var. *decoratifrons*, Cost.

♀ 1. Alger, 29. iv. 98. F. D. M.

MUTILLA PUNCTATA, Latr.

♀ 2. Alger, 22. iv. 98. F. D. M.

MUTILLA MAROCCANA, Oliv. = *humeralis*, Rad.

♂. Médéa. Koudia Sma on *Daucus carota*, 8. vii. 93. A. E. E.

♂ 2. Biskra, 2. vi. 98. F. D. M.

♀. Constantine On M'cid, 17. xi. 94. A. E. E.

MUTILLA CONTINUA, Klug.

♀. Biskra, 1 specimen. Foot of the first part of the ridge beyond Beni Mora, 2. vi. 94. A. E. E.

MUTILLA TUNENSIS.

♀. Azazga, 7. ix. 93. A. E. E.

MUTILLA MONTANA, Panz. = *subcomata*, Wesm.

♂. Biskra, 8 specimens. Visiting larval *Hemiptera* on *Thymelæa microphylla*, 28. iv. 95. A. E. E.

1 ♀. Alger, 19. iv. 98. F. D. M.

♀. Biskra, Hippone, iii. and iv., 95, 96, 97. A. E. E.

The ♂ specimens vary exceedingly in colour. One has the entire thorax and the base of the abdomen red, a second the entire thorax only, a third the pro- and meso-thorax exclusive of the scutellum, a fourth the pro- and meso-thorax including the scutellum, a fifth the meso-thorax and propodeum only, a sixth the pronotum and scutellum only; in fact, every possible variation in colour seems liable to occur. The form of the propodeum appears to vary considerably, but in all the 2nd abdominal segment is much wider than in *rufipes*, its near ally.

I have followed André (*Synops Mutill.*, France, 2nd Ed., p. 35) in considering *subcomata* as only a small variety of the ♀ of this species. In one of the specimens the petiole of the body is pale testaceous, the pale colour running under the silvery spot of the basal segment. This variety, however, seems to me to agree with that of the first ♂ variety, which has the base of the abdomen red.

MUTILLA UNCINATA, Luc.

♀. 1 specimen, Constantine, 22. x. 95. A. E. E.

MUTILLA (*Dasylabris*) ARENARIA, Fab.

- ♂ 3 from Bône, 2 found at a *Chermes* (?) in company with ants, 7. ix. 96. A. E. E.  
 ♂. Variety with propodeum red. Evidently a transitional form between *arenaria* and var. *maura*.  
 2 Biskra, on *Ammi visnaga*, 22. vi. 97. A. E. E.  
 3 Biskra, 30. v. 98 and 2. vi. 98. F. D. M.  
 ♀ 1. Bône, 9. ix. 96. A. E. E.  
 1 Hussein Dey, 4. iv. 93. A. E. E.  
 1 Pointe Pescade, near Algiers, 10. v. 93. A. E. E.

Ditto, var. *Maura*.

- ♀ 3. Biskra, 23. iii. 94., 4. vi. 94., 28. iv. 95. A. E. E.  
 ♀ 3. Biskra, 9 and 11. v. 98. F. D. M.

MUTILLA (*Dasylabris*) ITALICA, Fab. = *regalis*, Fab.

- ♂ 1. Pointe Pescade, near Algiers, 10. v. 93. A. E. E.  
 1. Le Tarf, on *Umbelliferæ*, 27. vi. 96. A. E. E.  
 ♀ 3. Biskra, 31. v. 93., 5. vi. 94., 21. iv. 95. That captured on the last date "crepitated loudly when chased." A. E. E.  
 ♀ 3. Biskra, 11. 12. 19. v. 98. F. D. M.

Ditto, var. *rubrosignata*, Rad.

- ♂ 1. Biskra, visiting larval *Hemiptera* on *Thymelæa microphylla*, 28. iv. 95. A. E. E.  
 ♂ 1. Biskra, 28. v. 98. F. D. M.

MUTILLA (*Dasylabris*) OLIVIERI, Sich. Rad.

- ♂ 8. Biskra, 3 on *Ammi visnaga*, 5 on *Zizyphus lotus* in April and May, 93, 95, 97. A. E. E.  
 ♂ 13. Biskra, 16. 27. v. 98. F. D. M. The bicarinated 2nd ventral segment is a very marked characteristic of this ♂.

MUTILLA (*Stenomutilla*) ARGENTATA, Vill., = *hottentota*, [Fab.]

- ♂ 1. Aine Draham Tunisie, 21. vii. 96. A. E. E.  
 2. Alger, iii. and iv. 98. F. D. M.  
 1. Biskra, 2. vi. 98. F. D. M.  
 ♀ 4. Biskra, on the prowl between 4 and 5 P.M.,



21. viii. 93., 6. iii. and 18. i. 95. A. E. E. One seen entering the burrow of *Anthophora fulvitaris*, 17. iv. 94. A. E. E.

5. Alger. F. D. M.

MYRMOSA EPHIPIUM, Rossi.

♂ 6. Le Tarf, on *Fœniculum*, 24. 26. vii. 96. A. E. E.

MYRMOSA FRATER, E. Saund. E.M.M., xxxv., p. 283.

♂ 12. Le Tarf, on *Fœniculum*. A. E. E.

APTEROGYNA OLIVIERI, Klug.

♂ 4. Biskra, visiting larval *Hemiptera* on *Thymelæa microphylla*, i. v. 95. A. E. E.

♂ 1. Biskra, on *Ammi visnaga*, 29. v. 97. A. E. E.

♂ 2, ♀ 6. Biskra, v. and vi. 95-98. A. E. E. and F. D. M.

APTEROGYNA PICI, André.

♂ 2. Biskra, on *Ammi visnaga*, 28. v. and 7. vi. 97. A. E. E.

♂ 5. Biskra, 30. v. to 8. vi. 98. F. D. M.

Two of Mr. Morice's specimens have the propodeum more or less red, which suggests that it might possibly vary to a coloration similar to that of *Olivieri*. The almost obsolete tooth on the intermediate trochanters and the shorter apical process of the stipites of the armature will distinguish it in any of its varieties.

MYZINE, Latr.

Fifty-two species of this genus are already recorded from the Palæarctic region, but notwithstanding this Mr. Eaton has, I believe, succeeded in discovering two distinctly new ones, and Mr. Morice one. In order to ascertain whether these were really undescribed I have taken some trouble to analyze the genus, and to get the species more or less together into groups. I have no doubt that many will prove to be varieties of each other. Radozkowski, Hor. Soc. Ent. Ross., xx, p. 36, expresses the opinion that only two species exist in the Mediterranean fauna, and that the rest are all varieties arising from crossing between these. Even this may possibly be true, but some of them are at any rate easily distinguished structurally, and that being the case I think it is better to treat them as distinct until

intervening forms are discovered. Mr. Eaton has taken seven species and Mr. Morice six.

MYZINE TRIPUNCTATA, Rossi.

♂ 1. Bône, 10. viii. 97. A. E. E.

MYZINE GUERINII, Luc. = *latifasciata*, Palm.

♂ 2. Médéa still north of the railway-station, on *Eryngium triquetrum*, 29. vi. 93. A. E. E.

♂ 1. Hippone, on *Ammi visnaga*, 10. viii, 96. A. E. E.

♀ 1. Biskra, 12. v. 97. A. E. E.

♂ 6. Biskra, v. 98. D. D. M.

♂ 2. Biskra, 4-30. v. 98. F. D. M.

Ditto, var. *cercerigastra*, Grib. (?).

♀ 1. Biskra, 30. iv. 98. A. E. E.

MYZINE LÆTA, n. sp.

♂ 3. *M. Guerinii* affinis, abdominis segmento primo minus transverso, segmentis (basalibus plus minus rufo pictis) fasciis continuis colore dilutiore vel flavo ornatis.

♀ Albido pilosa, capite et thorace nigris, prothorace rufo vel flavo picto, abdomine pedibusque testaceis, pilis horum albidis.

♂ in size and general contour like *Guerinii*, Luc., but with the antennæ rather shorter and less robust, the yellow colour of the thorax more extensive, the pronotum often being entirely yellow, head and thorax clothed with bright silvery hairs, clypeus and mandibles yellow, the latter brown at the apex, wings quite clear, nervures brown, costa and stigma testaceous, radial cell elongate and pointed as in *Guerinii*, abdomen yellow with the bands of the basal segments narrowly ferruginous, their ground colour also often tending to that coloration. In all the specimens however which I have seen, some of the segments towards the apex have the bands black, as in the majority of other species, and in one specimen all the bands are black. It can only be distinguished from *Guerinii* by the denser silvery-white hairing of the thorax, the slighter antennæ and the different form of the 1st abdominal segment. This last in all the specimens is less transverse and more globose than in *Guerinii*, the puncturation of the abdomen is finer and more remote, and the stipites of the armature are truncate at the apex, and much less hairy along the inner margin.

L. 15-16 m.m.

♀ differs from the allied species in being clothed very sparsely with long silvery hairs, and in having the prothorax longer, and more gradually tapering towards the head, testaceous-brown with a darker transverse central band, and often with an ivory-white lateral spot; in one instance this spot spreads almost on to the disc, and the dark transverse band is broken up into 3 spots; mesonotum and propodeum black, very shining, wings hyaline, nervures clear rufotestaceous, abdomen and legs entirely clear rufotestaceous, the former with lateral ivory-white spots on the 1st to the 5th segments.

Long. 10-11 m.m.

♂ 4. Biskra, on flowers of *Zizyphus lotus*, 30. iv. 95 and 24. 5. 97. Colour of eyes in life black or brown-black. A. E. E.

♂ 1. Biskra, on *Ammi visnaga*, 10. vi. 97. A. E. E.

♀ 1. Biskra, 19. v. 97. A. E. E.

♂ 3, ♀ 7. Biskra end of May and early June. F. D. M.

Since this description was written Monsieur Vachal has described a species under the name of *Martini*, Ann. Soc. Fr., 1899, p. 538, which may possibly be the same as the above, but the coloration does not agree, and in his species the 2nd submarginal cell in the ♀ is absent whereas it is present in mine.

MYZINE, sp. (?).

♂ 1. Biskra, on *Ammi visnaga*, 10. vi. 97. A. E. E.

I cannot refer this for certain to any species I know, and from a single ♂ I do not like to describe it as new. It is closely allied to *tripunctata*, Ross., but smaller and the puncturation more scattered; *Polita*, Tourn., the type of which I have seen, and *Anceps*, Gribodo, are also both closely allied, but with neither does it seem to agree exactly.

MYZINE FASCICULATA, n. sp.

♂ Nigra, flavo variegata, antennis rufopiceis, abdominis segmentis valde sed sparsim punctatis ad basin constrictis, apicibus ad latera et subtus dense fimbriatis.

♂ Head and thorax black, shining, clothed with pale hairs, largely punctured; antennæ reddish-brown, rather slender, clypeus (in part or altogether) and mandibles pale yellow, pronotum largely punctured with a spot on each side of the anterior margin, which sometimes unite into a continuous band, and a wide band just in front of the submembranous posterior margin, and the tegulæ pale yellow. Wings

slightly infusate, radial cell pointed. Abdomen very shining, black, with very large and remote punctures, the posterior margins of the first six segments with a pale yellow band, sometimes broken into 2 lateral spots and a central line. Seventh segment sharply bidentate, largely and closely punctured, all the segments at the sides with a fimbria of rather stiff golden hairs, which project at the sides, giving the angle of the segment a fasciculated appearance; beneath black, segments rather finely punctured and somewhat dull at the base, shining and very largely punctured at the apex which bears a fimbria of fine golden hairs. Eighth segment with a curved central process. Legs with the femora black, except at the extreme apex, tibiæ and tarsi pale, the former more or less marked with black on their inner side.

Long. 8–11 m.m.

In one specimen taken by Mr. Eaton the neuration of the wings differs greatly from that of all the others in having the radial cell subtruncate, the 3rd submarginal longer with all its angles almost rectangular, and emitting a nervure from its upper external angle. As the neuration in the 2 wings does not exactly agree I feel convinced that this is merely an occasional sport.

- ♂ 1. Biskra, on a tree with blue flowers in the Jardin,  
26. v. 93. A. E. E.  
♂ 2. Biskra, on *Ammi visnaga*, 28. v. 97., 24. v. 93.  
A. E. E.  
♂ 1. Biskra, on *Zizyphus lotus*, 3. v. 95. A. E. E.  
♂ 8. Biskra, 14. v. to 2. vi. 98. F. D. M.

MYZINE ROUSSELI, Guér.

- ♂ 6. Le Tarf, on *Foeniculum vulgare*, 25–27. vii. 96.  
A. E. E.  
♂ 3. Biskra, 14–28. v. 98. F. D. M.

MYZINE HISPANICA, Guér.

- ♂ 2. Bône along the sea-shore, 31. vii. and 3. ix. 96.  
A. E. E.  
♂ 1. Bône, on *Euphorbia paralias*, 21. viii. 97. A. E. E.

MYZINE LACTEIPENNIS, n. sp.

Nigra, capite et thorace albido pilosis, prothoracis margine postico maculâ que laterali antica flavis, alis lacteo-hyalinis, venis subhyalinis; abdomine nitido parce punctato, segmentis transversis vix constrictis fasciis flavis bis interruptis ornatis.

In form resembling the species with the wider abdominal segments, such as *hispanica*, *rousseleii*, etc. Head and thorax black clothed with white hairs, mandibles flavous, antennæ black, rather slender, pronotum with a band on its posterior margin, and a large spot on each side in front yellow, femora black, yellow at the apex, tibiæ and tarsi pale, the former with a black line on its inner side, wings hyaline, nervures scarcely darker; abdomen black, the segments scarcely constricted at the base, rather finely and remotely punctured on the disc, more closely on the sides, apical bands pale yellow, narrow, deeply bisinuate, so as to be almost interrupted; apical segment sharply bidentate; beneath with a narrow apical band on all the segments, their surfaces very largely and irregularly punctured, 6th with its apex truncate; process of the 8th curved upwards as in the other species.

Long. 10 m.m. Biskra. F. D. M.

MYZINE, sp. (?).

♀. Four ♀♀ taken by Mr. Morice at Biskra differ from the ♀ of *Guerinii*, which they otherwise resemble in size and form, in having the 3rd joint of the antennæ longer than in that species, in having the hairs on the basal joints of the antennæ and on the face above the clypeus finer and pale instead of black, the hairs of the thorax paler, and the wings much less infuscate; as these are doubtless the females of one of the many described males I refrain from giving them a name.

TIPHIA BECKERI, Tourn.

♀. Bône, on *Euphorbia helioscopia*, 16. iii. 26.

♀. Bône, visiting *Diplotaxis* or *Sinapis nigra*, 2. v. 96.

These specimens agree with Tournier's description in Ann. So. Belg., xxxiii, p. 9, but the species seems to be scarcely distinguishable from *morio*.

SCOLIA (*Triscolia*) BIDENS.

♂. Algiers, on the ramparts on *Silybum marianum*, 4. iv. 93 and 19. iv. 93. A. E. E.

♂. Algiers, 18. iv. 93. A. E. E.

♂, and ♀ 2. Sidi Ferruch, on *Centaurea seridis*, 8. v. 93. A. E. E.

♂. Biskra, 24. v. 93. A. E. E.

♀. Médéa, on *Onopordon macracanthum*, 26. vi. 93. A. E. E.

- ♂ ♀. Constantine, on *Onopordon macracanthum*, 11. vi. 94 and 9. v. 95. A. E. E.  
 ♂. Bône, visits *Diplotaxis* or *Sinapis nigra*, 28. iv. 96. A. E. E.

SCOLIA (*Discolia*) MENDICA, Klug.

- ♂ 3. Biskra, on *Ammi visnaga*, 24. v. 97. A. E. E.  
 ♂ 3, ♀ 3. Biskra, 6-27. v. 98. F. D. M.

SCOLIA (*Discolia*) VARICOLOR, Luc.

- ♂ ♀. Biskra, on *Ammi visnaga*, 25. v. 93. A. E. E.  
 ♀. with 2 yellow spots on the 3rd abdominal segment.

SCOLIA (*Discolia*) INTERSTINCTA, Klug.

- ♂ 2. Biskra, on *Zizyphus lotus*, 29. iv. 95. A. E. E.  
 ♂ ♀. Biskra, on *Ammi visnaga*, 18 and 24. v. 93. A. E. E.  
 ♂ ♀. near Azazga, on *Echinops*, 13 and 14. v. 93. A. E. E.  
 ♂ ♀. Médéa, on *Eryngium triquetrum*, 26. vi. and 10. vii. 93. A. E. E.  
 ♂. Le Tarf, 23. vi. 96. A. E. E.  
 ♀. var. with 2 spots on 2nd segment, Aine Draham (altitude 2700-3300 feet), 21. vii. 96. A. E. E.  
 ♂ ♀. Biskra, end of May. F. D. M.  
 ♂ 2. Philippeville, 20. vi. 98. F. D. M.

SCOLIA (*Discolia*) MAURA, Klug.

- ♀. Tizi-Ouzou, on *Echinops spinosus*, 15. vi. 93. A. E. E.  
 ♂ ♀. Biskra, on *Echinops spinosus*, 15. vi. 93. A. E. E.  
 ♂. Biskra, 28. iv. 97. A. E. E.  
 ♂ 4, ♀ 7. Biskra. F. D. M.  
 ♀. Médéa, 4. vii. 93. A. E. E.  
 ♀. Biskra, on *Acanthyllis tragacanthoides*, 23. v. 94. A. E. E.

SCOLIA (*Discolia*) PROPODEALIS, n. sp.

Minuta, nigra immaculata, nigro hirta, alis violaceo, nigris, propodeo micante, valde sed non creberrime punctato, abdomine in mare sparse in femina sparsissime et subtiliter punctato.

This species, like all the others of the genus, has very few structural characters peculiar to itself, but its shining propodeum, which is largely but not very closely punctured in both sexes, will I think at

once distinguish it from *maura*. The punctures in this species are as a rule further apart than the width of each individual puncture, whereas in *maura* and in most of the other species they are so crowded as almost to become confluent. The abdomen also in this species is less strongly and closely punctured than usual, the puncturation of that of the ♀ being very sparse and fine. It really seems to me to be most closely allied to 4 *punctata* and *dispar*, but its entirely black livery and its less close puncturation will distinguish it from the black-winged variety of the former, and the black hairing of the male and entirely black livery of both sexes separate it from *dispar*.

Long. 10–11 m.m.

♂ 3 and ♀ 1. Médéa, banks of the Oued-el-Harch (altitude about 1900 feet) on *Mentha rotundifolia*, 8.45 to 10 A.M., 19. vii. 93. A. E. E.

SCOLIA (*Discolia*), sp. (?).

♂. Biskra, on *Ammi visnaga*, 10. v. 97. A. E. E.

♀. Biskra, on *Echinops spinosus*, 6. v. 97. A. E. E.

A black-winged species, the ♂ with 2 very small testaceous spots on the 3rd abdominal segment, the ♀ with two spots on both the 2nd and 3rd segments. I do not feel sure that this may not be a dark form of *interstincta*, Klug.

SCOLIA (*Discolia*) HIRTA, Schr.

♂. Biskra, on *Ammi visnaga*, 18. v. 93. A. E. E.

♂. Biskra. F. D. M. Third segment only fasciated; 4th with 2 small yellow spots.

♀. Médéa, on *Eryngium triquetrum*. Ravines near Md. Ben Omar (altitude 2730–3130 feet), 11. vii. 93. A. E. E.

♀. Médéa, on *Mentha rotundifolia*. Banks of the Oued-el-Harch (altitude about 1900 feet), 10. vii. 93. A. E. E.

SCOLIA (*Trielis*) CARBONARIA, Klug.

♀. Biskra, on the sand-hills, 26. iii. 97. A. E. E.

SCOLIA (*Trielis*) SEXMACULATA, Fab.

♂ 2. La Calle, on *Mentha rotundifolia*, 9. vii. 96. A. E. E.

♂ 4. Bône, 9. vii. to 12. ix. 96. A. E. E.

♀ 1. Bône, on *Cynanchum acutum*, 17. viii. 97. A. E. E.

SCOLIA (*Trielis*) VILLOSA, Fab.

♂ 5, ♀ 5. Biskra, visiting *Ammi visnaga*, *Traganum nudatum* or *Salsola tetragona*, and *Peganum harmala*, 4. iii. to 7. vi. A. E. E.

♂ 4, ♀ 8. Biskra, 17. v. to 3. vi. 98. F. D. M.

All the females are of the red-bodied form with clear wings and a dark violaceous spot at the apex. All the males and females have 3 submarginal cells.

SCOLIA (*Trielis*) MORICEI, n. sp.

♀. Flava, nitida, convexa, sparsim albopilosa, fortiter sed sparsim punctata. Antennarum flagellis mandibulisque rufo testaceis, oculis, ocellis, lineâ transversâ impressâ frontali, Thorace, lineâ subdistincta centrali, abdominis segmentis 2 et 3 macula laterali rotundata, minuta, 3 et 4 linea transversa apicali abbreviata nigris; subtus segmentorum apicibus dense et longe albociliatis, alis pellucidis regione costali subflavescente nervuris testaceis pedibus, longe albopilosis.

Pale yellow, shining, head largely and shallowly punctured, the very sinuate eyes, the ocelli, a curved impression connecting the posterior pair and a straight impression running from the anterior ocellus joining this piceous black. A black bisinuate impression traverses the face, its apices situated just opposite the sinus of the eyes. Flagellum of the antennæ and the mandibles, except at base of the latter, rufo-testaceous. Apex of the scape somewhat campanulate and diagonally truncate, so that in certain positions its lower margin appears like a tooth. Occiput densely clothed with white hairs. Thorax very largely punctured, the punctures very sparse on the disc of the mesonotum. A spot on the centre of the front margin of the mesonotum, more or less connected with a narrow stripe on the disc posteriorly, black or piceous. Pro- and mesopleuræ and sterna densely punctured and clothed with white hairs; metapleuræ very shining, impunctate; metasternum shining, hexagonal, remotely and finely punctured, fringed posteriorly with white hairs; propodeum densely punctured, more or less dull, clothed with short white hairs; wings hyaline, more or less yellowish towards the costal margin, nervures testaceous, extreme base black; abdomen convex, sparsely clothed with short fine hairs, rather largely and evenly, though remotely, punctured on the first 3 segments, the 4th segment smooth and shining in the centre, punctured at the base and apex only; 5th segment clothed with short golden hairs, rounded at the apex, a round spot on each side of the 2nd and 3rd segments, and a short transverse line on the apical margin of the 3rd and 4th piceous; beneath, shining, largely punctured,



especially at the bases and apices of the segments; legs clothed with long white hairs, inner posterior calcaria very long, slightly dilated, and diagonally truncate at the apex; outer ones short, more or less blunt.

Long. 15 m.m.

Biskra, on umbelliferous flowers. F. D. M.

SCOLIA (*Dielis*) THORACICA.

♂ 6, ♀ 1. Biskra, sand slopes on north side of ridge backing the Mont de Sable, "♂ basking on the sand and poking about at the roots of clumps of grass," 15 and 19. i. 95. A. E. E.

♀ 1. Biskra, visiting *Amberboa lippii*. 11. iv. 95. A. E. E.

♀ 2. Biskra, visiting *Ammi visnaga*, 25. v. 97. A. E. E.

♀ 1. Biskra, 23. v. 93. A. E. E.

♀ 1. Biskra, on *Peganum harmala*, 3. v. 94. A. E. E.

♀ 1. Sidi Ferruch, near Algiers, on *Centaurea seridis*, 8. v. 93. A. E. E.

♂ 5, ♀ 2. Bône; visits *Inula crithmoides*, or failing that *Koniga maritima*, 28. xii. 95 to 3. i. 96, and until beginning of February if weather is fine. A. E. E.

Eyes of the ♀ in life indistinctly streaked with bronze green and peacock blue. A. E. E.

♂ 6, ♀ 5. Biskra. F. D. M.

♀ 6. Alger, Apl. 1898. F. D. M.

SCOLIA (*Dielis*) CILIATA, Fab.

♂ 2. El Biar, on *Echium*, 25. iii. 93. A. E. E.

♀ 1. Telergma, on *Asphodelus microcarpus*, 16. v. 93. A. E. E.

♂ 3. Bône, 15. ii. and 2. iii. 96. A. E. E.

Also from Constantine, Algiers, and Biskra. A. E. E. and F. D. M.

SAPYGA EATONI, n. sp.

♀ Nigra, flavo variegata, subnitens, punctata, subpilosa, antennarum articulis intermediis latitudine longioribus, clypeo antice bidentato, prothorace truncato angulis lateralibus rectis, abdomine fasciis quinque flavis ornato.

♀ Head and thorax black, clothed with pale hairs, the former very

strongly and closely punctured; face carinated between the antennæ with an inverted V-shaped mark above the carina, a spot in the sinus of each eye, a small one behind the eye, and a broad lunate spot at the base of the clypeus yellow; apex of the clypeus slightly raised and produced in the centre which is angularly emarginate, its sides slightly sinuate; antennæ with its intermediate joints from the middle of the 3rd to that of the 7th rufescent, 3rd and 4th joints subequal, 5th rather shorter, only slightly longer than wide, following joints subquadrate. Thorax rather more finely punctured than the head, anterior margin of pronotum straight, its angles well marked and rectangular, with a large yellow spot on each side covering the angle, but not quite meeting in the centre of the margin, mesopleuræ with a spot under the insertion of the wings, 2 small spots on the scutellum, 2 transverse spots on the post-scutellum, and 2 large spots on the propodeum, yellow. Wings slightly smoky, external nerve of third submarginal cell angulated below its middle, legs with the apices of the femora, the tibiæ and tarsi (except the posterior pair of the latter which are infuscate) yellow; abdomen with the basal segment, black, rather more shining and coarsely punctured than the rest, 2nd to 6th regularly punctured, each a little less strongly and more finely punctured than the preceding one, and each bearing a broad transverse yellow band; that of the 2nd segment angularly emarginate at the base, those of the 3rd and 4th entirely covering the base, and leaving only about a 3rd of the segment black at the apex, that of the 8th interrupted in the middle and not touching either the base or apex, the sixth almost entirely yellow, beneath black, finely punctured with a large lateral spot on the 3rd and 4th segments.

Long. 9 m.m.

♀ 1. on the high-road from Algiers to El Biar, 17. ii. 93.  
A. E. E.

#### POMPILUS, Fab.

This is perhaps the most difficult of all the fossorial genera to deal with. In the first place the number of species described is somewhat appalling, being over 400 for the Palæarctic region only. Of these, about 150 are black with the base of the abdomen red, and possess in most cases a general similarity, in colour and form, so that small structural characters have to be relied upon to separate them into species. Another, and one of the chief difficulties, is that good structural characters can be easily detected in the ♂, whereas those in the ♀ are often

very slight and difficult to appreciate. The males and females are rarely taken together in such a way as to prove their relationships, so that in separating a lot of specimens into species one gets a residuum of females, whose distinctive characters are not strong enough to associate them for certain with any particular males, and which one also feels are not sufficiently well defined to describe as distinct without knowing their other sex. This being the case, I have been obliged to leave several apparently distinct forms amongst the red-bodied females uncharacterized, hoping that some day the discovery of their respective males will enable their systematic positions to be satisfactorily ascertained.

POMPILUS (*Pseudopompilus*) ANTONINI, De Stef. =  
*cyanopterus*, Moraw.

- ♂ 2, ♀ 1. Biskra, near railway, kilomètre 199, on  
*Zizyphus lotus*, 3. v. 95. A. E. E.  
♂ 3, ♀ 1. Biskra, 30. v. to 21. vi. 97. A. E. E.  
♀ 1. La Calle, 19. vii. 96. A. E. E.

POMPILUS (*Ferreola*) SAGAX, Kohl.

- ♂ 2. La Calle, sand-hills west of the town, 14. vii.  
96. A. E. E.  
♀ 1. Médéa, wood towards Kef-el-Azeri, on *Daucus*  
*setifolius*, 2. viii. 93. A. E. E.  
♂ 1, ♀ 1. Biskra, 20 and 19. v. 98. F. D. M.

POMPILUS (*Planiceps*) CASTOR, Kohl.

- ♂ 1, ♀ 1. Algiers, 21. iv., 4. iv. 98. F. D. M.  
♂. Constantine, 17. vi. 98. F. D. M.

POMPILUS (*Planiceps*) HIRTIPENNIS, n. sp.

♀ Niger capite et thorace pubescentibus, aureofuscis sub-micantibus, prothorace meso et metathoraci propodeoque simul sumptis longitudine fere æquale. Alis obscuris, subbrevis dense pilosis, coxis femoribusque anticis valde dilatatis tarsis brevibus pectine nullo, abdomine pube griseo-fusca subconspicua tecto.

♀ Black, head and thorax densely clothed with a close golden-brown shining pile, antennæ and mandibles piceous, head shaped

much as in *pollux* Kohl; antennæ rather short, with the basal joint compressed laterally, but not so wide as in *pollux*; 3rd and 4th joints subequal, hardly twice as long as the 2nd and about double the length of their basal width; pronotum very flat, nearly as long as mesonotum and propodeum to its brow; propleuræ concave, so as to form a distinct carina at their juncture with the pronotum; pilose covering of the pronotum so close as entirely to hide its surface; mesonotum and scutellum clothed as the pronotum; clothing of the propodeum less dense and greyer in colour, wings rather short, narrow, front wings densely clothed with rather unusually thick hairs, apex beyond the submarginals darker, veins wide, 2 submarginal cells, the 2nd subtriangular, its apical nervure and that of the 3rd discoidal not fully defined; posterior wings subhyaline, anterior coxæ very swollen, femora swollen, but not nearly to such an extent as in *pollux*; tarsi short; metatarsus rather swollen, longer than the next 3 joints together. Abdomen about as long as the thorax, clothed with a brownish-grey pile, much as the propodeum, looking browner or greyer according to the light; apical segment clothed with a few semi-erect hairs.

Long.  $7\frac{1}{2}$  m.m.

Biskra, on *Ammi visnaga*, 23. v. 97. A. E. E.

POMPILUS BREVISCAPUS, Mor.

♂ 4. Biskra, 27. v. to 3. vi. 98. F. D. M.

POMPILUS, sp. (?).

♂ 1. Biskra, 4. vi. 98. F. D. M. A very fine species allied to the above, but rather larger and with red legs; the abdomen banded with glaucous pubescence; the form of the base of the antennæ and the milky opalescent wings are almost identical with those of *breviscapus*, Mor., and *galactopterus*, Kohl. Mr. Morice only met with a single male, both antennæ of which have lost their apical joints, so that I have not thought well to describe it.

POMPILUS SEXMACULATUS, Spin.

♂ 2. Biskra, 20 and 24. v. 98. F. D. M.

POMPILUS (*Aporus*) GRACILIS, Klug.

♂. Biskra, amongst <i>Tamarix</i> , 1. v. 97.	} A. E. E.
♀ 2. Biskra, 9. v. 94., 5. v. 97.	
♀ 1 and 2. vi. 98. F. D. M. (Rather rubbed.)	

The specimens which I refer to the ♀ of this beautiful little species, appear to agree exactly with Klug's figure in *Symbolæ Physicæ*, and are easily recognizable from the other silvery-coated species with black apical spots to the wings, by the nearly triangular 2nd submarginal cell, the inner nervure of which is quite straight, almost as long as the posterior nervure, and is directed backwards towards the base of the wing; the outer nervure is much shorter, also quite straight, and runs at right angles to the costal margin. The apex of the cell, where these two nervures almost unite, is situated close to the base of the marginal cell, which is short and subtriangular; both the recurrent nervures of the 3rd discoidal are emitted from the 2nd submarginal, and diverge in lines almost identical with those of that cell, so that the 3rd discoidal looks almost like a copy of the 2nd submarginal, except that its inner margin is angulated so that it forms a pentagon; in both cases, especially in that of the 3rd discoidal, the cells look as high or higher than wide; claws bifid on all the legs. *Amœnus*, Klug, must be another closely-allied species, so far as its neurulation would suggest, but according to the figure in the *Symbolæ* it has no metatarsal comb on the front legs.

A single ♂ which I think no doubt belongs to the above resembles it in coloration, only the silvery pubescence is not quite so dense, the abdomen is dark towards the apex, and only slightly silvery pubescent. The neurulation of the wings is rather darker, and the 2nd submarginal and 3rd discoidal cells are less elongately triangular and less similar to each other in shape, the 3rd discoidal being considerably wider at the base. The antennæ are black, the joints of the flagellum from the 2nd upwards subequal, posterior margin of the pronotum angulated as in the ♀, legs testaceous, tibiæ outwardly and tarsi fuscous, posterior metatarsus as long as the two following joints together, inner colcar of hind tibiæ hardly longer than half the metatarsus. Apical ventral valve of abdomen somewhat parallel sided, truncate at the apex, with a central carina.

### POMPILUS (*Aporus*) FRIESEI, n. sp.

Caput et thorax nigra, aureo-argenteo micantia, abdomen rufotestaceum; flagelli articulus secundus tertio paullo longior: prothoracis margo posticus angulatus, alæ lacteo-hyalinæ, macula magna nigra apicali ornata pedes rufi, unguiculis ad basin angulato-dilatatis et seta valida prope basin dilatationis usque ad apicem extensa armatis.

Closely allied to *gracilis*, Klug, with much the same coloration, but with the abdomen and legs of a brighter, more rufescent colour, and the head, thorax and antennæ black, the two former and basal

joint of the latter densely clothed with golden silvery hairs. The 2nd joint of the flagellum is only slightly longer than the 3rd, whereas in *gracilis* the 2nd joint is much longer; prothorax angulately emarginate posteriorly; anterior metatarsi with 3 spines as in *gracilis*, but these are much shorter and only about half as long as the joint which bears them, while in *gracilis* they are quite two-thirds as long. The wings are coloured much as in that species, but the 2nd submarginal is much wider, trapeziform, its upper margin about half as long as the lower, and its outer nervure meeting the nervure of the radial cell near the centre of the latter, and not near the base. Claws angularly dilated laterally at the base, with a stiff bristle extending from near the base of the angulation almost to the apex of the claw. This at first sight gives the claw almost the appearance of being bifid.

Long. 9 m.m.

♀ 2. Biskra, 12 and 20. v. 98. F. D. M.

POMPILUS (*Aporus*) VACHALI, n. sp.

Capite et thorace nigris, argenteo sericeo-micantibus antennis gracilibus, pronoto fortiter declivi postice semicirculariter emarginato, in medio ipso angulato: mesonoto valde convexo, alis lacteo-hyalinis fascia lata prope apicem nigro-fusca ornatis, cellula cubitali secunda postice radiali longitudine æquali, metatarsis anticis spinulis tribus longis armatis, abdomine rufo, subargenteo micante, segmentis tribus apicalibus nigris.

Head and thorax black, clothed with a brilliant silvery pile, head small, very flat and transverse, scarcely produced beyond the eyes either in front or behind; clypeus slightly raised along its apical margin, mandibles testaceous at the base; antennæ slender with the 3rd joint very long, a third longer than the 4th; basal joint clothed with silvery pile; pronotum very declivous, rather long, much narrowed in front, its posterior margin semicircularly emarginate with a slight angular incision in the centre of the emargination. Mesonotum wide and gibbous, the post-scutellum from a lateral point of view almost perpendicular, and the propodeum extending backwards from a much lower level than the scutellum. The propodeum and coxæ are especially brilliant in their silvery clothing. Wings clear hyaline with a milky or almost frosted tint in certain lights; second submarginal cell about three times as wide along its lower margin as along its upper, the lower margin about equalling the radial cell in length. A broad black-brown band crosses the apex of the wing, the actual apex being rather clearer; a cloud also covers the extreme apex of the hind wing. Legs black, anterior metatarsus as long as the

next two joints together, bearing three long piceous spines; claws of all the legs bifid or toothed, posterior tarsi spinose; abdomen with a slight silvery pile, the first three segments red, the remainder black, apical segment above and below with a few fine hairs.

Long. 10-11 m.m.

This species has much the coloration of the others of this group, but is quite distinct in the structure of the thorax.

♀ 4. Biskra, 28. iv. to 29. v. 98. A. E. E. and F. D. M.

♀ 1. on *Ammi visnaga*, 25. v. 97. A. E. E.

POMPILUS (*Aporus*) ARGYRELLUS, Klug.

♀ 2. Biskra, 5. vi. 97. A. E. E. These 2 ♀, which I refer to the above, have the 1st and 2nd submarginal cells subequal, and in this respect seem to agree with Klug's figure. The entire insects are covered with sheeny grey-white pubescence, which in certain lights gives exactly the effect of the bands on the abdomen represented by Klug. The anterior tarsi are somewhat pale.

POMPILUS (*Aporus*) FUMIGATUS, Klug.

♂ 1. Bône, 30. vii. 97. A. E. E.

♂ 2, ♀ 4. Biskra, 4. v. to 23. v. 97. 98. A. E. E. and F. D. M.

POMPILUS (*Aporus*) MELANURUS, Klug.

♀ 1. Bône, 7. viii. 97. A. E. E. This and the preceding species have both the long 2nd submarginal cell as in *argyrellus*, Klug.

POMPILUS (*Evagethes*) CINERASCENS, n. sp.

Caput et thorax nigra dense argenteo-sericea, illud macula flava minuta orbitali utrinque notatum, alis dilutissime infuscatis, fascia apicali fusca ornatis cellulis cubitalibus duabus instructis, pedibus plus minus testaceo variegatis metatarsis anticis spinulis brevissimis armatis. Abdomen testaceum albido sericeum, segmentis tribus apicalibus nigris.

♀. Head and thorax black, densely clothed with a bright silvery-white pile; mandibles red at the base with a few bristly hairs;

extreme edge of clypeus shining but not raised, bearing a few fine hairs : inner orbit of each eye with a very small pale spot ; antennæ with the 3rd joint of the flagellum about three-fourths the length of the 2nd : distance between the posterior ocelli equal to the distance between each and the eye ; vertex with a very few long pale hairs ; posterior margin of pronotum sharply angular in the centre, tegulæ pale testaceous, wing nervures brown ; wings very slightly tinged with brown, with a broad apical dark brown band which stops just short of the wing-cells, 2nd submarginal rather large, its lower margin more than twice as long as its upper, and rather longer than the radial cell ; coxæ and femora all clothed with silvery pubescence, the former especially densely and brightly, anterior tarsi with no apparent comb, all the tibiæ and the apices of the femora more or less testaceous, the latter clouded with greyish-brown at the base, except the posterior pair, which are testaceous throughout ; these and the tarsi are also clothed with silvery pile, but not densely : tarsi testaceous, their apices darker ; claws with a small tooth beyond the centre ; calcaria pale, except those of the posterior pair, which are nearly black ; abdomen more or less clothed with silvery pile, testaceous as far as the apex of the 3rd segment, the rest black, apical segment with a few very fine, inconspicuous hairs.

Long. 9 m.m.

Although this is a single specimen, it is in such perfect condition that I have ventured to describe it.

♀ 1. Biskra, on *Anmi visnaga*, 25. v. 97. A. E. E.

POMPILUS (*Evagethes*) ORICHALCEUS, n. sp.

Niger, pube orichalcea dense vestitus, mandibulis, margine antico clypei, labro, antennarum scapo antice propleurarum margine postico, tegulis, pedibus (tarsis exceptis), testaceis, abdomine testaceo, apice nigro prothorace angulatim emarginato.

Head and thorax densely clothed with silvery hairs with a distinct brassy tinge, pleuræ and head posteriorly also with fine rather long erect pale hairs ; mandibles, labrum, extreme anterior edge of clypeus, and scape of the antennæ in front testaceous, 3rd and 4th antennal joints subequal, pronotal angle very obtuse but distinct, posterior margin of propleuræ obscurely testaceous, tegulæ testaceous ; wings slightly smoky, their apices with a darker band which does not quite reach the wing-cells, nervures brown, testaceous at the extreme base ; 2 submarginal cells, the 2nd small, pentagonal, its inner margin being distinctly angulated ; radial cell small, slightly wider than the 2nd submarginal ; propodeum rather short and wide, trun-



cately rounded posteriorly ; legs with the coxæ and tarsi black, the former densely clothed with shining pubescence like the thorax ; femora and tibiæ testaceous, their extreme apices dusky ; tibial spines and calcaria dark, anterior metatarsi with three short spines. Abdomen testaceous, clothed with a silky sheeny pubescence, but the vestiture not so dense and finer than that of the thorax : 5th and 6th segments dark, 6th rather widely rounded at the apex without exerted hairs above, segments beneath with a few short fine hairs.

Long. 8-9 m.m.

♀ 2. Biskra. F. D. M.

POMPILUS (*Evagethes*), sp. (?).

♀ 1. Biskra, 17. iv. 97. A. E. E. Abdomen red at the base.

POMPILUS (*Evagethes*), sp. (?).

♀ 1. Biskra, 25. iv. 97. A. E. E. Abdomen red at the base.

POMPILUS QUADRIPUNCTATUS, Fab.

♂ 1. Biskra, on *Ammi visnaga*, 21. vi. 97. A. E. E.

♂ 1. Bône, on *Cynanchum acutum*, 17. viii. 97. A. E. E.

POMPILUS ORNATUS, Klug.

♂ 4. Biskra, on *Ammi visnaga*, 20-30. v., and 4. vi. 97. A. E. E.

♂ 4. Biskra, 18. v.—3. vi. 98. F. D. M.

POMPILUS RUFIPES, L.

♂. Le Tarf, on *Fœniculum vulgare*, 24. vii. 96. Abdomen black, with only the apical segment white at the tip ; legs red ; wings smoky. A. E. E.

♀. (?) Bône, on *Euphorbia paralias*, 5. viii. 97. Abdomen with only a spot on each side of the base of the 3rd segment. Specimen evidently old and long exposed to weather ; legs black. A. E. E.

POMPILUS CLIENS, Kohl.

♀. Biskra, 28. iii. 95. A. E. E.

♀. Biskra, on *Ammi visnaga*, 28. v. 97. A. E. E.

♂. Bône, on *Euphorbia paralias*, 23. viii. 97.  
A. E. E.

POMPILUS COCCINEIPES, n. sp.

Niger, subopacus, mandibulis ante apicem, femorum dimidio apicali, tibiisque rufis prothorace postice arcuatum emarginato, metatarsis anticis spinis tribus nigris longis armatis. Alis fuscis, cellulâ cubitali tertiâ late trapezinâ unguiculis bifidis.

♀. Rather a short and robust species. Black, dull, clothed with a very fine inconspicuous purplish pile; head clothed with short black hairs, distance between the eyes and mandibles very short; clypeus extremely finely rugulose, slightly rounded in front, irregularly punctured above its apical margin; mandibles red towards the apex, 3rd joint of flagellum about two-thirds as long as the 2nd, margins of eyes posteriorly, and a very small spot on the anterior margin near the sinus, pale. Pronotum well-developed, clothed with short black hairs in front, its posterior margin arcuate; on its anterior declivous portion there are signs of pale scale-like hairs, as in *rufipes*, etc. Mesonotum rather wide, wings dark brown, third submarginal cell at the top about half as wide as at the bottom, posterior nervure of hind wing joining the median beyond the branch of the latter, metanotum behind the post-scutellum clothed with a dense brownish down, propodeum slightly hairy and with a few scale-like hairs at the base and apex. Abdomen with a few long and a few scattered scale-like hairs on its basal segment, apical segment with only a few fine hairs. Legs red with the coxæ, front pair of which are clothed with long hairs, the base of the femora and the tarsi black, calcaria piceous or reddish, in one specimen the metatarsi are also more or less red. Claws bifid.

Long. 10-11 m.m.

♀ 1. Biskra, near railway, kilomètre 199, 3. v. 95. A. E. E.

♀ 1. La Calle, sand-hills west of the town. 15. vii. 96.  
A. E. E.

POMPILUS PICTICRUS, n. sp.

♀. Præcedenti similis, sed minor, mandibulis ante apicem, pedum posticorum femoribus basibusque tibiæ, rufis, alis anticis cellulâ tertiâ cubitali triangulari, unguiculis simplicibus.

Very like the preceding in general appearance, but smaller, the clypeus slightly emarginate in front. Margins of the eyes concolorous, wings less infuscated, their apices darker, 3rd submarginal cell triangular, posterior nervure of hind wings uniting with the

branch of the median nervure, metanotum naked, propodeum with only a few short exerted hairs, basal segment of the abdomen without long hairs, apical segment with scattered bristly hairs. Legs entirely black, except the posterior femora, which are red, with the exception of the extreme base and apex, and the posterior tibiæ, which are red just below the base. Claws simple.

Long. 9-10 m.m.

♀ 2. Biskra, 15 and 16. v. 98. F. D. M.

### POMPILUS NIVEUS, n. sp.

♀. Niger, pilis niveis densissime vestitus, mandibulis tibiis posticis, tarsisque omnibus testaceis, calcaribus albis, alis subhyalinis apice fusco-maculatis, venis pallidis, cellulis submarginalibus tribus, pronoto angulatim emarginato.

Black, densely clothed with adpressed snowy-white hair; head posteriorly, pleuræ of thorax and propodeum, especially at the sides, also with scattered erect hairs; mandibles testaceous, clothed with silvery hairs at the base, labrum fringed with black hairs at the apex, cheeks between the eyes and mandibles about as long as their apical width. Antennæ with the 3rd joint considerably longer than the 4th, apices of the joints more or less testaceous, basal joints densely clothed with snowy hairs, pronotum angulately but very obtusely emarginate, wings nearly hyaline but with a very slight brownish tinge, the apices of the front pair narrowly banded with brown, tegulæ and nervures pale testaceous; 3 submarginal cells, the 3rd subquadrate, its outer nervure convexly curved; legs densely clothed with snowy hairs, the knees and tarsi of all the legs and the tibiæ of the posterior pair, testaceous. Anterior tarsi with a comb of long flattened black spines on their outer margin, the metatarsal joint bearing 3, the 2nd and 3rd two each, and the 4th one; on the inner margin the metatarsal joint bears 5 long curved slender spines, the 2nd joint one, the 3rd and 4th each one, but these are thicker and somewhat flattened. Anterior tibiæ with a few black spines near the apex, spines of all the other tibiæ and tarsi black, calcaria white; abdomen densely clothed with snowy hairs, extreme apices of the segments slightly testaceous.

♀ 5. Dunes, Biskra, 17 and 18. v. 93. A. E. E.

Somewhat like a snowy-white *plumbeus*, but distinguished at once by the pale testaceous wing-nervures, and the hairy propodeum, the flattened spines on the anterior metatarsal comb, and the white calcaria.

## POMPILUS PLUMBEUS, F.

Biskra, April and May.

Bône, May, July, August, September.

Biskra, December, January. A. E. E.

Alger, April and May, common. F. D. M.

One ♀ captured with its prey, a brown spider.

Estuary of the Seybouse, 25. viii. 97. A. E. E.

## POMPILUS SEXSPINOSUS, n. sp.

Niger, mandibulis in medio piceis, antennarum articulo tertio elongato spatio inter-oculari longitudine fere æquali, prothorace subangulatim emarginato, alis infumatis cellulis submarginalibus tribus instructis, tertia lata, apice constricto nervo externo in convexum curvato, metatarsis anticis spinis longissimis sex instructis apices versus subdilatis; mas capite et thorace dense villosis, abdominis segmento quinto ventrali apice arcuato-emarginato, sexto valde triangulariter exciso, utrinque foveola rotundata impresso, octavo lato, carina valida centrali instructo.

♀ broad and rather short. Entirely black, except the piceous centres of the mandibles, head slightly hairy, clypeus with the anterior margin very slightly emarginate, and narrowly shining, eyes subparallel, width between the posterior ocelli much longer than that which separates them from the anterior ocellus, and slightly longer than their distance from the eyes; antennæ with the 3rd joint long, about once and a half as long as the following, and nearly as long as the width of the vertex between the eyes. Mandibles and eyes contiguous; thorax sparsely hairy, prothorax short and wide, its sides subparallel, its posterior margin very obtusely subangulate; wings rather strongly infuscated, apical margin darker, with three submarginal cells, the 2nd and 3rd subequal on their posterior margins, the 3rd much constricted above, its outer nerve convexly curved, posterior nerve of hind wing uniting with the median beyond its branch; propodeum deeply channelled in the centre, and concave posteriorly, its sides rounded and clothed with erect hairs; abdomen clothed with a fine pubescence, changing colour according as the light falls on it, apical segments above and all the segments beneath with a few fine erect hairs. Anterior metatarsi with 6 very long spines, the 5 lower ones of which are very slightly dilated towards the apex. Claws toothed behind the middle.

The ♂ taken with this ♀ has the head and thorax densely clothed with long hairs, mandibles piceous-red just before the apex, antennæ rather short for a ♂ of this genus, 3rd and 4th

joints subequal in length, ocelli arranged as in the ♀ but the space between them and the eyes longer than the space between the posterior pair; pronotum rather more sharply emarginate than in the ♀; wings as in the ♀; propodeum clothed with long hairs, metatarsi of all the legs very long, as long or longer than the 3 following joints taken together; abdomen rather short and wide for that of a ♂, basal segment with a few long hairs at the base above and beneath, 5th ventral segment arcuately emarginate at the apex, 6th strongly and acutely excised in the centre, and with a small round fovea on each side near the base of the excision, 8th wide, with a strong central carina.

Long. 12 m.m.

♂ 1, ♀ 1. Biskra, border of sand-hills between Hammanes-Salahin and a small reed-fringed pond about a mile W.S.W. from the Hamman, visiting larval *Capsidæ* (?) or some sort of *Homoptera* on *Thymelæa microphylla*. A. E. E.

♂ 2. Biskra. F. D. M.

#### POMPILUS, sp. (?).

A single ♀ apparently closely allied to *notorius*, Tourn., Bône, 28. viii. 96. A. E. E.

#### POMPILUS DUBITABILIS, n. sp.

Niger, opacus, *P. teterrimo*, Grib., cui formâ et colore similis metatarsorum anticorum spinis 4, brevioribus, capite et thorace minus hirtis, nec non genis inter oculos et mandibulas multo brevioribus satis distinctus—ab *intacto* Tourn. differt cellula cubitali tertio sub-trapezoidali, propodeique lateribus haud longitudinaliter rugosis.

Black, dull clothed with a fine pubescence which gives a brownish tint in certain lights. Apex of the clypeus slightly emarginate and narrowly raised, smooth and somewhat shining cheeks between the eyes, and mandibles very short. Antennæ with the 4th joint about three-quarters as long as the 3rd, 2nd and 3rd together nearly equal to the distance between the eyes on the vertex; posterior ocelli distant from each other, as each is from the eye; face and vertex rather sparingly clothed with somewhat short black hairs, cheeks posteriorly more densely so. Thorax almost glabrous above, pronotum rather obtusely angled posteriorly, sternum hairy, wings very dark with purple reflections, lateral nerves of 3rd submarginal convex, nearly uniting above, posterior nerve of hind wing meeting

with the median just at or behind the point where the latter branches ; propodeum hairy posteriorly, with a fine central impressed line and concave above the insertion of the petiole, anterior metatarsi with four moderate spines, the basal one much shorter than the others, which are about as long as the 2nd tarsal joint, posterior metatarsi as long as the following 3 joints together, calcaria short, not more than half as long as the metatarsus. Abdomen with a few exserted hairs on the apical segment above and on the segments beneath.

Long. 16-17 m.m.

♀ 1. Biskra. A. E. E.

♀ 2. Biskra. F. D. M.

### POMPILUS FERTONI, n. sp.

Niger, capite, pro-thorace et mesonoto, pedibusque testaceo-rufis, propodeo densissime nigro hirsuto ; metatarsis anticis spinis quatuor longissimis, et sub dilatatis armatis.

♀ black, clothed with very short sheeny-grey pubescence ; head, pro-thorax, mesonotum, and legs, with the exception of the coxæ of the intermediate and posterior pairs and the femora of the posterior pair, testaceous-red. Head clothed with short fine pale hairs. Mandibles piceous towards the apex, inner margins of the eyes diverging rapidly from the vertex then almost angulated and sub-parallel to the clypeus ; cheeks between the eyes and mandibles scarcely developed, clypeus largely rounded in front ; distance of posterior ocelli from each other about twice that between each and the eye and between each and the anterior ocellus ; antennæ with the 3rd joint nearly twice as long as the 4th, the rest subequal ; pro-thorax testaceous-red, sharply emarginate posteriorly ; pro-pleuræ clothed with long pale hairs ; mesonotum and scutellum coloured like the prothorax, without exserted hairs ; wings black, with violet reflections, their extreme base and the tegulæ testaceous ; 3rd submarginal large, subquadrate ; posterior nervure of hind wings strongly curved before its union with the median ; propodeum, metathorax, and meso- and metapleuræ black ; pleuræ dull, smooth ; propodeum densely clothed with matted short black hairs. Anterior metatarsi bearing 4 long somewhat flattened and dilated spines, the basal one much the shortest, and each subsequent spine longer in proportion to its predecessor, the apical spine being as long as the next 2 joints of the tarsi taken together ; 2nd and 3rd tarsal joints each with 2 long spines, 4th with one ; coxæ of the posterior pair of legs and the femora of the last pair black except the extreme apex of the latter ; posterior tibiæ with a few short, pale spines, posterior metatarsi as

long as the 3 next joints taken together. Calcaria reaching to beyond the middle of the metatarsus ; claws rather straight with a strong blunt tooth beyond the middle ; abdomen black, clothed at the extreme base like the propodeum with matted hairs, the other segments clothed with grey sheeny pubescence, which forms a wide indefinite band on each, leaving their apices black in certain lights. 6th segment clothed above and beneath with bristly black hairs, the other segments beneath with a few shorter hairs.

The male, which was taken on the same plant with the females, and which I feel sure is rightly associated with them, is similar to them in general coloration, and in the sheeny-grey pubescence, but the testaceous colour is rather paler ; the wings are testaceous as far as the submarginal cells, and only dark at the apex beyond them, the post-scutellum is pale, all the coxæ are black, and the intermediate femora are dark, except at the apex ; the inner margins of the eyes are sinuate, but not more so than in many other species of the genus ; labrum slightly notched at the apex. Thorax as in the ♀ but the propodeum only clothed with the grey pubescence and without the dense black hairs of the ♀ ; 6th ventral segment slightly emarginate at the apex, 8th narrow and convex subtruncate, clothed with short, rather thick hairs at the sides ; armature with the stipites produced into three processes, the inner ones narrow, flat, slightly curved and converging ; below these are a pair of shorter spatulate concave processes, their dilatation somewhat pointed on its inner margin, black at the point and fringed with bristly hairs, the 3rd outside process very narrow, almost filamentary, clothed with fine long hairs ; sagittæ narrow subparallel, closely applied to each other except at the apex.

Long. 15, 16 m.m.

♂ 1, ♀ 4. Biskra, on *Ammi visnaga*, 19. v. to 4. vi. 97. A. E. E.

♂ 2. Biskra, 3. v. and 26. v. 98. F. D. M.

Belongs to the group of *platycanthus*, *Kizilkumii*, etc., but distinct by the number of spines on the anterior metatarsus.

#### POMPILUS EXCISILABRIS, n. sp.

♂ fere glaber, niger opacus, elongatus capite (præter maculas, 2, verticalem et facialem, clypeum labrumque nigra), pro—et mesonoto, obscure sanguineis ; antennis, pedibusque nigris, labro apice triangulariter exciso. Clypeo subelongato, genis fere nullis ; pronoto margine posteriore angulato, alis nigris cellulis submarginalibus tribus, tertio trapezoidali, nervo exteriori medio angulato,

valvula ventrali apicali subangustâ, pœne carinata, lateribus dense nigro spinosis.

Elongate, black, dull, nearly glabrous, except for the fine, almost imperceptible greyish pile which covers the whole insect; head, pro- and mesonotum, dark sanguineous red; the first with the clypeus, labrum, a spot on the face and another over the ocellar region, black; sides of the head posteriorly clothed with longish hairs; labrum with a distinct central incision. Clypeus with its anterior margin slightly sinuate, antennæ with the joints of the flagellum a little more than twice as long as wide; pronotum posteriorly angulated, its surface in front clothed with a few exserted hairs, scutellum considerably raised and narrowly flattened down the centre, its sides subconcave; post-scutellum widely grooved down the centre, wings dark brown, with purple reflections. 2nd submarginal cell wider than long, 3rd narrower than the 2nd, constricted towards the upper margin, which is about half the length of the lower, external nervure very convex, almost angulated. Legs with the posterior metatarsi as long as the 3 following joints taken together, claws nearly straight, toothed towards the apex, propodeum rather long, with traces in 1 specimen of transverse rugosities at the sides and the apex; abdomen long, clothed with a dull greyish pile; 6th segment rather deeply emarginate in the centre; 8th pointed, slightly convex, but hardly carinated, its sides densely fringed with thick spine-like hairs, intermingled with finer ones, armature with the upper processes of the stipites very long and slender, slightly converging at the apex; lower pairs curved, hairy, and somewhat spatulate, outer lateral processes curved, long, narrow and hairy, slightly dilated at the apex, longer than the upper processes.

Long. 13, 14 m.m.

♂ 3. Bône, on *Euphorbia paralias*, 31. vii. 97. A. E. E.

POMPILUS APPROXIMATUS, Smith.

♂ 3. Biskra, 17. iv. and 1. v. 97. A. E. E.

These are exactly like our British specimens of this species. The form of the 8th ventral segment is very peculiar, being very wide and subtectiform ventrally, each side produced into a pale, translucent wing, the surface clothed with black hairs, the centre much raised into a strong carina, and the apex emarginate; when the segment is in its normal position, the lateral wings are scarcely visible. I believe this species is probably the *bifidus* of Morawitz, and the *hæreticus* Tournier.

POMPILUS, sp. (?).

♂ 1. Le Tarf, 24. vii. 96. A. E. E.



POMPILUS VIATICUS, L.

♀ 2. Biskra, 17. v. 93., 4. iv. 97. A. E. E.

♀. Le Tarf, 27. vi. 96. A. E. E.

♂ 2. Biskra, 5 and 16. v. 98. F. D. M.

♀. Biskra, 24. iii. 98. F. D. M.

POMPILUS, sp. (?).

♀ 1. Biskra, Dunes on the Route des Zibans, 22. iii. 94. A. E. E.

POMPILUS CHALYBEATUS, Schiödte.

♂ ♀. Biskra, 1. v. 97. A. E. E.

♀. Biskra, 29. iv. 97. A. E. E.

POMPILUS MORICEI, n. sp.

Niger, orbitis in utroque sexu antice et postice striga pallida signatis, pronoto angulatim emarginato, propodeo postice piloso, alis infuscatis, cellulis submarginalibus tribus, tertia trapezoidali, tarsis anticis breviter spinosis, abdomen segmentis basalibus tribus plus minus rufis, marginibus posticis infuscatis, valvula dorsali ♀ setis nonnullis nigris vestita. ♂ segmento 5<sup>to</sup> convexo, apice submarginato, 6<sup>to</sup> medio plano valde inciso. 8° compresso, minuto, carinato, breviter pilosa.

♀ In form like most of the red-bodied species of the genus belonging to Kohl's Section 1. Black with the orbits of the eyes margined with a very narrow cream-white line, of variable length, in front, and a rather more conspicuous one behind, near the vertex; abdomen with the first 3 segments red, more or less widely fuscous posteriorly, head very shortly pilose, clypeus very convex, its anterior margin entire; narrowly and slightly raised, mandibles red in the centre, and clothed with a greyish pile; antennæ with the 3rd joint about as long as the 2nd and 4th together, thorax in fresh examples clothed with a somewhat inconspicuous brownish pile, pronotum sharply angulated posteriorly, propodeum posteriorly and at the sides with a few fine hairs; wings dusky, their apices darker, 3 submarginal cells, the 3rd subequal to the 2nd and trapezoidal; anterior metatarsi with 3 short piceous spines in the comb, which are scarcely more than two-thirds as long as the 2nd tarsal joint. Abdomen with the apical segment clothed with some rather stiff black hairs, but these not so dense nor so bristly as in some species.

♂ With similar orbital lines as the ♀. The 3rd submarginal cell in some examples almost triangular, 6th ventral segment flat,

narrowly and deeply excised at the apex, 8th compressed, and convex, subcarinate, shortly and densely pilose.

Long. 11–13 m.m.

♀ 1. Constantine, 1. x. 93. A. E. E.

♂ 5 and ♀ 2. 16—18. v. 98. F. D. M.

♀ 1. Biskra, 28. iv. 95. A. E. E.

♀ 1. Biskra, 20. v. 98. F. D. M.

Of the species described as having white orbital markings, the present seems to be most closely allied to *effodiens*, Fert., of which the author has kindly sent me a specimen, but it differs from that species in the absence of the dense beard on the underside of the mandibles. *montandoni*, Tourn., is without the bristly hairs on the apical segment, *signaticeps* has the 3rd antennal joint equal to the scape and 4th taken together, and *vagans*, Cost., has the base of the pronotum more or less pale. The white orbital streaks vary so much in extent in different individuals that they would doubtless be liable to disappear in some altogether.

Sp. (?) (1). In general appearance like the above, but smaller, with 3 short black spines on the anterior metatarsus, orbital markings as in that species, visible on the face as well as posteriorly.

♀ 2. Biskra, 8—11. iv. 97. A. E. E.

♀ 1. Biskra, 4. v. 98. F. D. M.

I was about to describe this form as new, as the males taken by Mr. Morice with his females are clearly distinct from those of the preceding, but I fail to detect any distinguishing structural character in the ♀, and knowing how often several species of *Pompilus* are found together in one locality, I feel that possibly the males are those of a distinct species, and so I refrain from describing either.

Sp. (?) (2). Very like the above, but with 4 longer black spines in the comb of the anterior metatarsus. Orbital markings only visible as a small spot behind the eye, pronotum sharply angulated, propodeum hairy posteriorly and at the sides, wings very dark; abdomen with the centre of the 1st and the base of the 2nd segment red, 6th segment dorsally with a few rather fine exserted hairs.

♀ 3. Algiers, 20—22. iv. 98. F. D. M.

Sp. (?) (3). A red-bodied species varying to entirely black, orbital markings just visible, prothorax angulated, posteriorly, propodeum hairy at the sides posteriorly, 5th ventral

segment excised in the centre ; 6th compressed and carinated, its sides concave somewhat as in *fumipennis*, Dahlb.  
Long. 5—6 m.m.

♂ 5. Biskra, 4. v. 98. F. D. M.

Possibly the ♂ of No. 1, but see remarks on that form.

*SALIUS EATONI*, n. sp.

Niger ferrugineo pictus, mas prothorace transverso postice angulatum emarginato, propodei apice semicirculariter strigoso. Abdominis segmentis 2do 3tio que ferrugineo bimaculatis, fœmina capite et prothorace ferrugineis, mesosterno, metapleuris, metasternoque fortiter strigosis, propodeo glabro, rugoso transverse striato, abdominis segmento secundo bimaculato.

♂ Elongate and narrow with the pronotum as long as the mesonotum ; head about as long as the pronotum, brownish-yellow ; antennæ fulvo-testaceous ; clypeus, except near the posterior angles and a somewhat triangular spot on the face, widest in the region of the ocelli, piceous ; sides of the face palest along the margins of the eyes. Clypeus clothed with a fine golden pubescence at the base, head posteriorly wider than across the eyes, its lateral angles rounded, its base slightly emarginate ; pronotum rather darker than the head, angularly emarginate posteriorly, its anterior margin black (the dark colour produced in the centre and forming a dark dorsal line), base very narrowly dark, mesonotum black, a spot towards its apex produced on to the scutellum testaceous-brown. Wings luteous with an ill-defined dark apical band, clouding the marginal, 3rd submarginal and more or less of the 3rd discoidal cell ; superior nerve of the 3rd submarginal cell about half as long as the inferior ; propodeum smooth, dull, slightly longer than wide, its apical declivity with a series of semi-circular, somewhat concentric ridges ; pleuræ dull, very finely shagreened, and very remotely, finely and shallowly punctured ; abdomen dull, clothed with a fine inconspicuous greyish pile, the 2nd and 3rd segments each with a bilobed testaceous spot at the base, 6th ventral segment flat, somewhat angularly emarginate at the apex, with a curved hook at each lateral angle of the segment as in *bicolor* and other species, 8th rounded at the apex and fringed with broad flattened spine-like hairs. Legs with the coxæ, trochanters and femora black, the apices of these last, the tibiæ and tarsi fulvo-testaceous.

The ♀ found with the male has the head entirely testaceous, except just in the region of the ocelli, the post-ocular region much wider than the head across the eyes ; pronotum testaceous, angulated posteriorly, clothed with short hairs, prosternum and coxæ with long hairs,

mesonotum black, testaceous about the scutellum ; wings luteous, the apices of the anterior pair with a distinct dark band, the posterior with the anterior angle clouded, lower margin of the 3rd submarginal cell twice as long as the upper ; mesopleuræ dull, not actually strigose but with some shallow impressions, like elongate punctures, arranged somewhat in lines ; mesosternum diagonally striate at the base, and along its posterior margin, where it meets the metathorax ; metapleuræ and sterna deeply striate ; propodeum glabrous, transversely, rugosely and somewhat irregularly striate ; abdomen nearly dull, black, the surface very finely aciculate, and somewhat remotely punctured, the basal segment less strongly so than the others, 2nd segment with two testaceous spots near the base, more or less united in the middle, 3rd and following segments more or less hairy, the hairs of a brownish hue, those of the apical segment very dense ; each segment viewed sideways has a wide grey pubescent band at the base. Legs testaceous, coxæ, trochanters and the basal half of the femora, black, the extreme apex of the tibiæ and of each tarsal joint dark, claws beneath with a series of strong bristles, and a small tooth near the middle.

Long. ♂ 16 m.m. ♀ 20-22 m.m.

♂ and ♀. Biskra, on *Ammi visnaga*, Route des Zibans, 18 and 25. v. 93. ♀ A. E. E.

♂ 3 and ♀. Biskra, on *Ammi visnaga*, Route des Zibans, ♂ 28 and 24. v. 97. A. E. E.

♂. Le Tarf, 24. vii. 96. A. E. E.

♀. Near Azāzga, on *Eryngium tricuspdatum* (altitude, 1900 ft.), 1. ix. 93. A. E. E.

♀. Bône, 5. ix. 96. A. E. E.

♀ 2. Biskra, 30. v. 98. F. D. M.

The females of this species vary somewhat in size, and in the form of the 3rd sub-marginal cell, which is wider on its upper margin in some than in others ; also in one of Mr. Morice's specimens there is a small basal spot on each side of the 3rd abdominal segment as in the ♂.

This species is allied to *bicolor*, F., but differs in the shorter, less cylindrical prothorax of the ♂, and from the ♀ associated with that species by Costa (*Oss. al Genere Salix*, p. 4), by the strongly striate propodeum, and according to the figure given by that author, the very different coloration and the different neurulation of the anterior wings. In the ♂ from Le Tarf the abdomen is clothed with a fine silvery sheeny pubescence, and has the pronotum entirely black, but in other respects it resembles the type form.

**SALIUS 6 PUNCTATUS, Fab.**

♀. Koudia Sma, on *Daphne gnidium*, 21. viii. 93.  
A. E. E.

♀. Constantine, 2. x. 93. A. E. E.

Ditto, Small, unspotted var.

♀. Biskra, on *Ammi visnaga*, 18. v. 93. and 18. v. 97.  
A. E. E.

**SALIUS INFUMATUS, Palm.**

♂ 2, ♀ 2. Biskra, on *Ammi visnaga*, 18. v. 93., 15—  
28. v. 97. A. E. E.

♂ 8, ♀ 13. Biskra, v. 98. F. D. M.

**SALIUS BARBARUS, Fab.**

♂. Bône, on *Mentha rotundifolia*. 10. viii. 97. A. E. E.

♀. Koudia Sma, on *Eryngium tricuspdatum*, appar-  
ently roosting under the umbels, 21. viii. 93.  
A. E. E.

♀. Azazga, in the forest on *Mentha rotundifolia*, 20.  
ix. 93. A. E. E.

♀. La Calle, 14. vii. 96. A. E. E.

**SALIUS DIMIDIATIPENNIS, Cost.**

♂ 1. Le Tarf, on *Fœniculum vulgare*, 24. vii. 96. A. E. E.

**SALIUS DISCOLOR, Fab.**

♀ 1. Biskra, 21. iii. 95. A. E. E.

**SALIUS PEREZI, n. sp.**

Niger, capite et thorace plus minus testaceo pictis mesopleuris subtilissime coriaceis, fœminæ substriatis, metapleuris in utroque sexu striatis propodeo glabro, transverse striato, medio longitudinaliter subimpresso, abdomine toto nigro opaco, pedibus rufotestaceis, femorum basibus nigris, maris tibiis apice nigris, tarsis maxima ex parte nigris.

♂ Head black, face with a triangular patch along the margin of each eye and a spot on each side of the clypeus, and head behind the eyes, testaceous; antennæ testaceous, slightly darker towards the apex, surface very finely and very closely punctured; near each eye on a level with the ocelli is a well-marked puncture, but the hair from it is wanting on both sides (this character exists in many of the species of the genus, but is unusually strong in this); pronotum testaceous, transverse, twice as broad as its central length, angulately emarginate posteriorly, its anterior and posterior margins

black, rest of the thorax black ; wings luteous, their apical margins with a broad, definite black band ; mesopleuræ and sterna dull and shagreened, but not striate ; metapleuræ and sterna very finely and closely striated ; propodeum finely and rugosely, transversely striate, with a shallow longitudinal impression ; abdomen subelliptic, black, surface very finely shagreened with indications of very remote shallow punctures, 6th ventral segment with a narrow rounded central emargination, 8th rather flat, rounded at the apex and fringed with a series of short thick hairs ; legs rufotestaceous with the coxæ, trochanters, the base of the femora, the apices of the tibiæ, and the middle and hind tarsi black, except the basal joint ; front pair testaceous, darkened towards the apex.

♀ like the ♂ in coloration, except that the head (with the exception of the clypeus) is entirely testaceous, that there is a testaceous spot on the posterior part of the mesoscutum, extending on to the scutellum and sometimes on to the post-scutellum, and that the testaceous colour of the femora is more extensive, leaving only the basal quarter or third black ; mesopleuræ and sterna dull and shagreened and with more or less distinct diagonal striæ, metapleuræ and sterna finely and clearly striated ; propodeum glabrous, much as in the ♂, transversely and rugosely striated with a shallow central impression ; abdomen black, finely shagreened and with a very indefinite shallow puncturation, apical segment clothed with rather long brownish hairs.

Long. 11–13 m.m.

♂. Biskra, 16. v. 98. F. D. M.

♀ 2. Biskra, on *Ammi visnaga*, 18—24. v. 93. A. E. E.

### SALIUS SANGUINICOLLIS. n. sp.

Niger, capite et thorace sanguineis, in mare plus minus nigro signatis, antennis rufotestaceis alis nigro violaceis, propodeo nigro, hirsuto transversæ rugoso-striato, mesopleuris prope coxas intermedias spinose tuberculatis ; abdomine nigro, immaculato, in foemina subnitente sparsius punctato in mare opaco, pedibus anticis, tibiis tarsisque intermediis et posticis obscure sanguineis.

♂ Black, head and thorax clothed with rather short black hairs, clypeus nearly as long as broad ; mandibles long and straight, sanguineous, sides of the face and vertex behind the eyes of the same colour, antennæ rufotestaceous, apical and sub-apical joints dusky ; thorax red on the pro- and mesonotum, often clouded on the centre of the pronotum and mesoscutum ; pleuræ black, dull, with a remote, very shallow puncturation ; mesopleuræ each with a triangular spine-like

tubercle above the coxæ ; wings dark brown-black with violet reflections, marginal cell very long, about three times as long as wide, diagonally truncate at the apex, 3rd submarginal once and a half as long as high ; metanotum strongly strigose transversely ; propodeum with its upper area nearly square, rugosely striate, pilose, subtectiform, the centre being gradually raised into a central ridge, the apex truncate, the lateral angles slightly prominent ; abdomen elongate, elliptic, dull, 5th ventral segment very slightly emarginate at the apex, 6th with a strong carina on each side, 8th semi-circular ; legs, coxæ and trochanters, the base of the intermediate femora, and nearly the whole of the posterior femora and tibiæ as well as the tarsi black.

♀ Very like the ♂ in coloration, but with the red colour of the thorax and head brighter and more extensive, the whole of the upper surface of the thorax being red, its underside and propodeum black ; cheeks behind the eyes with long black whiskers, 3rd joint of antennæ once and a half as long as the 4th, pronotum angulately emarginate posteriorly, mesonotum very finely, closely punctured, mesopleuræ spinose as in the ♂ and the wings similar in colour and neuration to those of that sex ; propodeum tectiform, pilose and transversely wrinkled, truncate posteriorly, but with the lateral angles rounded, not angulated as in the ♂. The lower angles of the propodeum are strongly developed in both sexes ; abdomen rather shining, very finely shagreened with a remote, rather large, but shallow puncturation, apical segment clothed with black-brown bristles. Legs coloured as in the ♂.

Long. 14-15 m.m.

A very distinct species in coloration and in the form of the mesopleuræ and propodeum.

♂. Biskra, visiting *Zizyphus lotus*, 3. v. 94. A. E. E.

♀. Biskra, on *Ammi visnaga*, 28. v. 94. A. E. E.

♂ 4, ♀ 5. Biskra, 14-30. v. 98. F. D. M.

*SALIUS PARVULUS*, Dahlb.

♂ 3. Biskra, on *Ammi visnaga*, 15-27. v. 97. A. E. E.

♂ 8, ♀ 9. Biskra, 16. v. 98. F. D. M.

♀ 3. Alger, 31. iii., 25. iv. 98. F. D. M.

The males taken by Mr. Morice all resemble those we take in Britain, but the females have a distinct, clear, eye-like spot near the apex of the wing, which is not the usual form with us ; also the puncturation of the surface is coarser and much more distinct, and the propodeum is transversely striate towards the apex. I thought at first they were referable to Morawitz's *punctatissimus*, but he says of that

species "pronoto margine apicali arcuatim emarginato," whereas in these specimens the posterior margin of the pronotum is very distinctly angulated. The species of the *exaltatus* group are very difficult to distinguish in the ♀ sex. I however put them under *parvulus*, as 9 of them were taken on the same day with 8 males, which seem to me to be normal individuals of that species.

SALIUS, sp. (?).

♀ 1. Biskra, 16. v. 98. F. D. M.

This is a much larger ♀ than the others, and I suspect it may belong to *pusillus*, Schiödte, but without seeing the ♂ I should not like to say for certain.

SALIUS PROPINQUUS, Lep.

♀ 1. Bône, 2. iii. 96. A. E. E.

♀ 1. Alger, 29. iii. 98. F. D. M.

♂ 1 (?). Alger, 21. iv. 98. F. D. M.

I have little doubt that the above ♂ is the ♂ of this species, and is so far as I can ascertain undescribed; it resembles the ♀ in coloration, but has the bands of the wings less distinct, the apicalone covering the apex of the wing and not broken by a white sub-apical spot. The head and thorax are dull, finely and very closely punctured, the propodeum having a fine transverse striation, and a somewhat impressed dorsal line; the antennæ are slender and clothed with a very short pilosity, visible only under a strong lens, abdomen very finely coriaceous; apical ventral valve flat, slightly emarginate at the apex; coxæ and pleura with a silvery-grey pile.

SALIUS FISCHERI, Spin.

♂ 5, ♀ 5. Biskra, on *Ammi visnaga*, 18. v. 93. and 5—30. v. 97. A. E. E.

♂ 7, ♀ 9. 18. v. 93. and 10—20. v. 98. F. D. M.

SALIUS, sp. (?), allied to FUSCUS, Fab.

♂ 1. Biskra, 17. v. 98. F. D. M.

AGENIA STRUCTOR, Fert.

♀ 1. Bône, hillside in the Plaine des Karézas, 6. ix. 93. A. E. E.

♀ 1. Bône, on *Cynanchum acutum*, 17. viii. 97. A. E. E.

♂ 2. Alger, 16. iii. and 7. iv. 98. F. D. M.



CEROPALES ALBICINCTUS, Ross.

♂ 4, ♀ 1. Biskra, on *Ammi visnaga*, 18. v. 93. and 23.  
v. and 22. vi. 97. A. E. E.

♂ 6, ♀ 1. Biskra, 16—17. v. 98. F. D. M.

♀ 5. Biskra, 23. v.—9. vi. 98. F. D. M.

♀ 1. Le Tarf, on *Fœniculum vulgare*, 24. viii. 96.  
A. E. E.

The specimens vary exceedingly in size, much as do those of *Ceropales maculatus* in this country. The males as a rule are smaller than the females, but I have a ♂ measuring nearly 12 m.m. in length, and Mr. Morice has a ♀ measuring only 5 m.m. All the specimens are of the variety with very wide yellow abdominal bands, which often cover half the segment.

CEROPALES VARIEGATUS, Fab.

♂ 1. Biskra, on *Ammi visnaga*, 17. v. 97. A. E. E.

♂ 1. Biskra, 16. v. 98. F. D. M.

